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CONTENTS

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GOULSTONIAN LECTURES

On Polyuria. By Prof. E. B. VERNEY, F.R.C.P.
I.—Polyuria associated with Pituitary Dysfunction.—*(Illustrated)*..... 539

ORIGINAL ARTICLES.

The Use of Avertin for Anæsthesia. By JOSEPH BLOMFIELD, M.D., and F. E. SHIPWAY, M.D. ... 546

Air-tight Suction Drainage of the Chest. By HAROLD BURROWS, F.R.C.S.—*(Illustrated)*..... 549

Some Secondary Mental States and their significance. By R. G. WALMSLEY, M.B..... 551

CLINICAL AND LABORATORY NOTES.

Carcinoma of the Rectum Treated by Gamma Radiation. By CECIL P. G. WAKELEY, F.R.C.S., and H. A. COLWELL, M.R.C.P. 553

Strangulation of a Sliding Hernia. By HARRY GABB, M.B. 554

MEDICAL SOCIETIES.

Royal Society of Medicine: Clinical Section: Endocrine Disease 554

Medical Society of London: Chronic Dyspepsias of Children over the Age of Infancy 556

REVIEWS AND NOTICES OF BOOKS.

The Problems of Applied Entomology. By Prof. Robert A. Wardle, M.Sc. 558

Old Masterpieces in Surgery. By Alfred Brown, M.D... 558

Report on Mussel Purification. By R. W. Dodgson, M.R.C.P..... 559

Trial of J. B. Rush. Edited by W. Teignmouth Shore 559

The Machine of Life. By Ethel Browning, M.D... 559

Text-book of Pathology. By Prof. Robert Muir, M.D., F.R.S. 560

Practical Biochemistry for Students. By Prof. E. W. H. Cruickshank, M.R.C.P..... 560

Clinical Radio-diagnosis of the Intestinal Canal. By H. Chaoul 560

Malay Poisons and Charm Cures. By John D. Gimlette, M.R.C.S. 560

LEADING ARTICLES.

NUTRITION IN THE COALFIELDS..... 561

CONGENITAL DISLOCATION OF THE HIP 561

NOISE AND ANNOYANCE ... 563

ANNOTATIONS.

Local Government Bill.... 564

Injuries in Workshops.... 564

Parasitic Problems in the Lesser Antilles 564

Surgery in the Diabetic.... 565

New Views on Rheumatism in Childhood 565

Vaccines in the Treatment of Acute Pulmonary Disease 566

The Biological Estimation of Toxicity 567

Sterility in Women 568

Travelling Scholarships ... 568

SPECIAL ARTICLES.

The Local Government Bill: Coöperation of Public Assistance Committees with the Voluntary Hospitals and with the Local Medical Profession 571

Scotland: Health Propaganda.—Presentation to Sir Leslie Mackenzie.... 574

Ireland: Infectious Diseases Regulations ... 575

Paris: The Danger (to the Surgeon) of Cosmetic Operations..... 576

Medicine and the Law: Lunacy Certification.... 576

Medical Society of London: Anniversary Dinner 577

MODERN TECHNIQUE IN TREATMENT

The Ambulatory Treatment of Piles. By W. S. PERRIN, F.R.C.S. 569

PUBLIC HEALTH SERVICES.

Influenza 577

Infectious Disease in England and Wales 578

CORRESPONDENCE.

The Injection Treatment of Varicose Veins (Mr. R. T. Payne, Dr. H. M. Hanschell) 578

Spinal Anæsthesia in Abdominal Surgery (Dr. Howard Jones, Mr. J. D. Mortimer) 579

Tonsillectomy in Chronic Arthritis (Dr. H. Warren Crowe)..... 580

Operating for Appendicitis (Mr. R. J. McNeill Love) 580

Mediæval Towns and Spas of Germany (Mr. Henry Baerlein)..... 581

OBITUARY.

Clive Riviere, F.R.C.P.—*(With portrait)* 581

Henry Roxburgh Fuller, M.D. 582

Andrew R. J. Dungan, M.D. 582

John Noble, M.B. 582

William Henry Griffith, L.R.C.P. 582

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Local Government (Scotland) Bill 583

House of Lords: Local Government Bill..... 584
The Age of Marriage Bill 586

House of Commons: Dangerous Drugs in India.—Medical Examination of Female Aliens.—Sick Leave among Women Clerks.—Deaths from Small-pox.—Deaths from Post-vaccinal Encephalitis.—Definition of Tuberculosis as Infectious Disease..... 586

THE SERVICES.

Royal Army Medical Corps.—Indian Medical Service.—Colonial Medical Services.—Naval Medical Officers' Dinner 587

MEDICAL NEWS.

University of Cambridge.. 587

University of Sheffield.... 587

A Hospital Amalgamation 588

Donations and Bequests.. 588

Women's Hospitals..... 588

Western Ophthalmic Hospital 588

Presentation to a Surgeon 588

Immunisation against Diphtheria in Manchester 588

Central London Throat, Nose and Ear Hospital.. 587

Post-graduate Course on Paediatrics 587

Bayliss-Starling Memorial Scholarship..... 587

West London Post-graduate College 587

Industrial Nursing 587

Royal Sanitary Institute.. 587

Metropolitan Asylums Board 587

North-Western Tuberculosis Society 587

Royal Society of Edinburgh 587

Dental Benefit Council.... 587

Work of the London Hospital 587

Birmingham and Midland Eye Hospital..... 587

Development of Droitwich 587

Melton Mowbray War Memorial Hospital 588

Rebuilding of Tiverton Hospital 588

Sunderland Royal Infirmary 588

Manchester University Students' "Rag" 588

Clayton Hospital, Wakefield 592

NOTES, COMMENTS, AND ABSTRACTS.

Medico-legal Difficulties in General Practice 590

The Health of Palestine and Trans-Jordania.... 592

Bifocals for Golfers..... 592

Medical Diary 588

Appointments 588

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Births, Marriages, Deaths 589

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ON

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PROFESSOR OF PHARMACOLOGY IN THE UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.

LECTURE I.—POLYURIA ASSOCIATED WITH PITUITARY DYSFUNCTION.

(Delivered on March 7th, 1929.)

MR. PRESIDENT AND FELLOWS,—In my first lecture I should like to deal with the nature and ætiology of the polyuria associated with disturbance in the function of the pituitary body; in my second, with the nature of the polyuria which follows experimental reduction of the renal tissue and with the mechanism of the production of this polyuria; and in my third lecture I propose to offer some remarks which I hope may be of service in the interpretation of pathological polyuria in man in terms of the findings and theories of experimental physiology.

POLYURIA FOLLOWING ISOLATION OF THE MAMMALIAN KIDNEY.

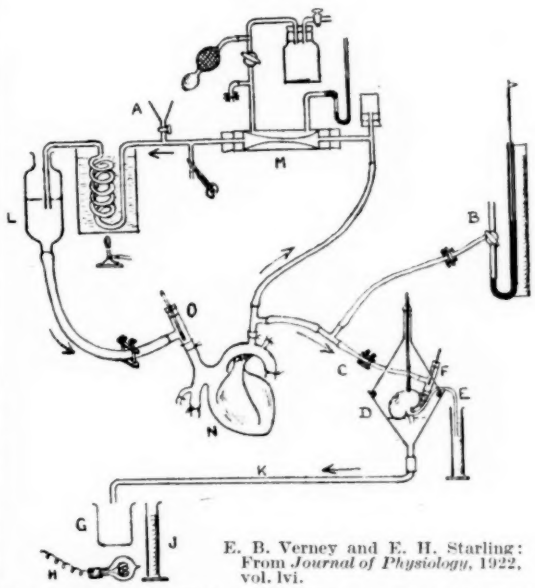
The heart-lung preparation of my inspiring teacher, the late Prof. Starling,[14] not only made possible the discovery by him of the nature of the response by cardiac muscle to changes in the work which it was called upon to perform, with the consequent formulation of this discovery into the law of the heart and its subsequent extension into a clear definition of cardiac tone, but also afforded a means whereby mammalian tissues might be perfused with oxygenated blood under rigidly controllable conditions, and their responses to measurable changes in their environment determined with accuracy.

The isolated kidney of the dog was first perfused by means of a heart-lung preparation by Bainbridge and Evans.[2] They were concerned primarily with the gaseous metabolism of the kidney, and obtained only a minimal amount of urine, and this only on the addition of sodium sulphate or Ringer's fluid to the circulating blood. In 1921 Prof. Starling and I started an investigation into secretion by the isolated kidney,[21] and since the basis of most of the experimental work to which I shall refer in these lectures has been the heart-lung-kidney preparation, a preliminary description of this preparation becomes essential in order that the results obtained by its use may be assessed in their true physiological tenour. All the operative work in the experiments described in these lectures was performed on dogs fully anæsthetised with chloralose, following chloroform and ether induction. The preparation is shown diagrammatically in Fig. 1 and its description is given briefly in the legend.

The advantages of such a preparation in the study of the mechanism of the secretion of urine are evident. The pressure at which the blood is supplied to the kidney, the temperature of this blood, and its content in gaseous and other solutes are directly under our control. The flow of blood and of urine can be accurately measured at any time, and samples of these fluids readily collected in quantities permitting of an accurate chemical analysis. It may be said at once that the urine secreted by a kidney so perfused differs in very marked degree, both in quantity and chemical composition, from that secreted by a dog's kidney denervated, but remaining in situ. These differences will be referred to in a moment, but before describing them it is expedient to consider to what extent, if any, these observed changes are due to the development in the blood of some change of state or composition of no physiological, as distinct from toxicological, significance.

Freshly defibrinated blood has been used as the perfusate, but that the specific characters of the urine secreted by the isolated kidney are due to the employment of such blood has been readily disproved by defibrinating the intact animal.[17] If such be done, the urine secreted by the kidneys in situ retains its normal characteristics. Further, in a few experiments with the heart-lung-kidney preparation the anticoagulant heparin has been employed, instead of resort being made to defibrination; the abnormal characters of the urine are still in evidence. These facts suggest that the abnormality observed in the secretion of the kidney, when isolated and perfused with the heart-lung preparation, is to be attributed to some deficiency in its mechanism rather than to the intrusion of some new and foreign activity—a suggestion to which, as we shall see later, experiment lends a concrete significance.

FIG. 1.



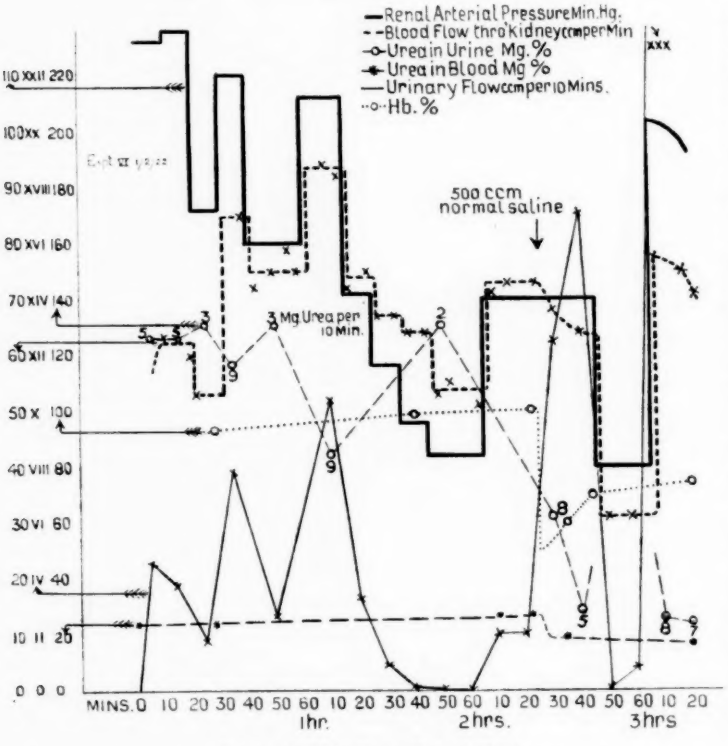
E. B. Verney and E. H. Starling: From *Journal of Physiology*, 1922, vol. lvi.

Diagram of heart-lung-kidney preparation. The blood in the venous reservoir L passes through a cannula O, tied into the superior vena cava, to the right auricle. After passing through the lungs, the blood is pumped by the left ventricle through a cannula tied into the brachiocephalic artery to a variable resistance M, whence it returns through a warming coil to the venous reservoir. The tube C conducts arterial blood to a cannula F tied into the renal artery of the kidney D. The venous blood from the kidney is conducted to a vessel G, and returned at intervals to the venous reservoir L. The pressure of the blood-supply to the kidney is recorded by a mercury manometer B. The cannula E is placed in the ureter and the urine collected in a graduated vessel as shown. The cannulæ O and F are provided with thermometers.

The urine secreted by the isolated kidney is clear, yellowish in tint, and gradually pales as the experiment proceeds. Protein is absent, or present in the merest trace, and then only in the first few samples collected. It contains chloride in a much lower concentration than the serum, urea, and sulphate (when this last is added to the blood) in a higher concentration, and is free from glucose. The molybdate test for phosphate is negative, and ammonia is present only in the first few cubic centimetres of the secreted fluid. The total molecular concentration as determined by the depression of the freezing-point is far below that of the serum. The rate of urine flow is abnormally rapid, 1 to 2 c.cm. per minute, for example, being a rate which is quite commonly encountered. The urine, then, is a copious and dilute one, and I should

like to give especial emphasis to its low content in chloride, and to the fact that the typical characteristics of the urine do not suddenly appear at the very beginning of an experiment; they gradually intrude into the picture, and gain in definition as the experiment proceeds.

FIG. 2.


—Renal Arterial Pressure Mm. Hg.
- -Blood Flow thro' kidney c.c. per Min
-o-Urea in Urine Mg. %
-•-Urea in Blood Mg %
—Urinary Flow c.c. per 10 Mins.
···o···Hb. %
500 c.c.m. normal saline
3 Mg. Urea per 10 Min.
MINS. 0 10 20 30 40 50 60 10 20 30 40 50 60 10 20 30 40 50 60 10 20
1 hr.
2 hrs.
3 hrs

Verney and Starling: Ref. as Fig. 1.
This experiment demonstrates the urine flow responses of the isolated kidney to changes in perfusion pressure.

To what causes are these curious changes to be attributed? For curious they are when we remember that any increase in the rate of urine elimination by the kidney in situ in the experimental animal is typically accompanied by an approach in the composition of the urine towards that of the plasma. If the urine contain a higher percentage of chloride than the plasma, then an increase in the output of water, produced, for example, by section of the sympathetic supply to the kidney, will be accompanied by a fall in the percentage content of the urine in chloride. If, on the other hand, the urine contain a lower percentage of chloride than the plasma, then the diuresis following sympathetic section will exhibit a percentile rise in the urinary chloride, in each case the diuretic response being attended by an approximation of the chemical composition of the urine towards that of the plasma. But that the normal responses of the kidney to such changes in environment as are produced, for example, by variations in arterial blood pressure, are still exhibited when the organ is perfused in the isolated state, is readily shown by the results of such an experiment as that represented in Fig. 2. It will be seen that the rate of urine flow varies with, and in the same sense as, the height of the arterial blood pressure, and that the concentration of urea in the urine shows an inverse relationship to the rate of urinary flow. And in the case of chloride which, as we have seen, is present in the urine in such low concentration, a percentile rise accompanies the increase in urinary flow produced by an increase in the perfusion pressure. Pressure diuresis, then, as produced in the isolated kidney, gives rise to such changes in the composition of the urine as our knowledge of the reactions of the kidney in situ would lead us to expect—viz., a movement towards the composition of the protein-free plasma. And whether such a change is accompanied by a percentile rise, as in the case of chloride, or by a percentile fall, as in the case of urea, the minute output of each substance secreted is increased during a diuresis provoked by a rise in perfusion pressure.

The ingravescent polyuria of the heart-lung-kidney preparation, being accompanied at constant perfusion pressure by a recession of the chloride concentration of the urine from that of the plasma, and by a fall in the amount of chloride eliminated per unit interval of time, cannot therefore be explained on any hypothesis embodying the conception of a progressive increase in the susceptibility of the kidney to the pressure stimulus. Neither are the observed changes due to acapnia. In the early experiments performed by Prof. Starling and myself,[21] the lungs were ventilated with air and the CO_2 content of the blood fell to a very low level. The fact that prolonged hyperpnœa in man may give rise to a marked polyuria (Collip and Backus[5]), accompanied by a fall in the percentage of urinary chloride (Davies, Haldane, and Peskett[6]), suggested that acapnia might be the cause of the secretory abnormalities observed in the case of the isolated kidney. This suggestion was shown to have no basis in fact, since ventilation of the lungs with air containing CO_2 in as high a concentration as 11 per cent. had no inhibitory effect on the development of the polyuria and the concomitant fall in urinary chloride.[17] Many attempts were made to break down this chloride retention by raising the chloride concentration in the serum to a level higher than the abnormally high one which the retention itself was causing, but all were unsuccessful in attaining this object.

We now suspected that an explanation might be found in the disappearance from the blood of some body which was normally concerned in regulating the output of water and chloride by the kidney. Von den Velden [22] was responsible for the discovery that the polyuria of diabetes insipidus in man could be controlled by subcutaneous injections of extracts of the posterior lobe of the pituitary body, and since the urine obtained from the isolated kidney of the dog resembled in its composition that typical of this condition, it was decided to explore the possibility of the two conditions having a common ætiological basis. Pituitary extract was therefore introduced into the circulating blood of a heart-lung-kidney preparation. The polyuria was inhibited in a dramatic fashion, and analysis of the urine showed that the chloride precentage had risen to so high a figure that the minute output of chloride was markedly increased. The data of an experiment which illustrates these facts are collected in the following table. Such changes in water and percentile chloride output invariably occurred, whilst every other means adopted to decrease the urine flow, such as lowering of the blood pressure or the addition of adrenalin, failed to bring about that rise in the urinary chloride which is now believed to be a specific effect of pituitary extract.

We must now inquire whether this action of pituitary extract on the isolated kidney is of any physiological significance in relation to the activity of

Time.	T. °C.	B.P. mm. Hg.	Blood flow c.cm. min.	Hb per cent.	Serum.		Urine.				
					Urea per cent.	NaCl per cent.	c.cm. /15 mins.	Urea per cent.	NaCl per cent.	NaCl/ 15 mins.	
1·35	34	116	250	100	29	—	4·4	5·45	0·62	—	
2·04	35	116	353	—	—	—	2·9	5·66	0·33	10	
2·34	35	116	353	—	—	—	3·6	5·02	0·13	5	
2·55	35	116	333	—	—	—	5·5	2·84	0·05	3	
3·10	35	115	333	—	—	—	13·1	1·48	0·01	1	(*a*)
3·15	35	114	300	—	—	—	—	1·19	0·14	11	
3·22	35	115	300	—	—	—	7·7	—	0·32	17	
3·40	35	114	316	—	—	—	5·2	1·83	0·29	15	(*b*)
3·55	35	116	343	122	17	—	5·2	—	—	—	
4·11	36	116	353	93	14	—	27·9	7·2	0·16	44	
4·16	35	115	324	104	13	—	27·3	4·9	0·22	60	

(*a*) Pituitrin 0·5 c.cm.
(*b*) Add 200 c.cm. Ringer + 1 c.cm. 1 : 100,000 adrenalin HCl.

Starling and Verney: From Proc. Roy. Soc. B., 1925, vol. xcvii.

This experiment demonstrates the effect of pituitrin on the polyuria of the isolated kidney and on the composition of the urine which it secretes. The pituitrin used was a 0·05 per cent. extract of the dried posterior lobe of ox gland.

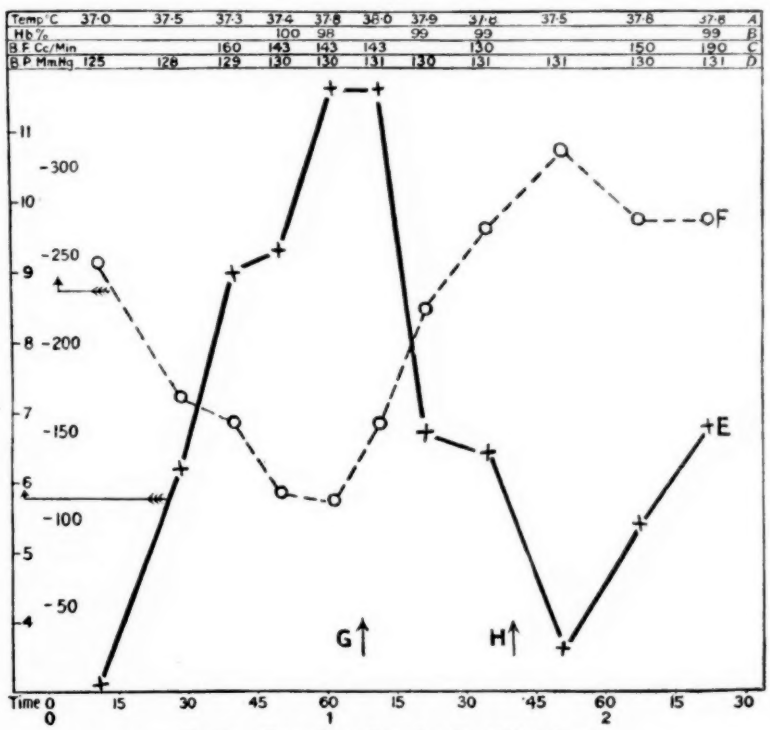
the normal kidney. Does the pituitary body, through the intermediation of an internal secretion, continually hold in check those primitive instincts in the kidney which, when given rein to, result in its reversion to the type of gland characteristic of the fish and amphibian classes of the vertebrate phylum? In such animals the power to secrete a urine having a greater total molecular concentration, and, in the case of chloride, a greater partial molecular concentration than that of the plasma is absent; and it may well be that our egress from the sea was accompanied by a demand for an increased degree of control over the salt-and-water metabolism of our bodies, a demand which was responded to by a functional reassociation of those parts which in the higher invertebrates were both engaged in excretory work. For on Gaskell's view of vertebrate development the pituitary body is the homologue of the coxal glands of the crustacea.

Some experiments were therefore undertaken of such a nature as possibly to give an answer to this question.[19] If it be a fact that the polyuria which gradually appears when the isolated kidney is perfused is due to the gradual disappearance of the internal secretion of the pituitary body from the blood, it might be expected that the passage of some of the blood of the heart-lung-kidney preparation through the head of a dog would result in the blood becoming recharged with pituitrin, and so lead to an inhibition of the rate of urine secretion by the isolated organ. This expectation was fulfilled as the result of some experiments to which reference will now be briefly made.

A heart-lung-kidney is prepared and the effect on the quantity and composition of the urine of switching various parts of the tissue of another dog into perfusion-parallel with the kidney is observed. By the term perfusion-parallel is to be understood the diversion of some of the blood from the arterial side of the heart-lung to the particular tissue perfused, the efferent blood from this tissue being led back to the venous side of the heart-lung, and so reaching eventually the isolated kidney, also connected with the arterial side of the heart-lung preparation. The isolated kidney is, therefore, used as a test object by means of which the blood passing through it may be biologically assayed as to its content in pituitrin-like substances. Four series of experiments were performed. In the first series the head and neck were perfused in parallel with the kidney; in the second series the hind legs and pelvis; in the third the head and neck after exposure of the pituitary body, and in the fourth the head and neck subsequent to removal of the pituitary body. The main artery and vein, to and from the part to be perfused, were carefully isolated and included within loose ligatures in such a manner that the appropriate cannulæ could be inserted at the desired moment, and the perfusion started with the minimum period of circulatory arrest.

In Fig. 3 are charted the results of an experiment of the first series. The gradual rise in the output of water by the isolated kidney and the concomitant fall in the percentage of chloride in the urine in the early part of the experiment are clearly seen. The temperature of the blood supplied to the kidney, the hæmoglobin content of this blood, the rate of blood flow through the kidney, and the pressure of supply, are recorded at the head of the figure. At the point G, by which time the polyuria was well developed, the head, neck, and right forelimb were switched into perfusion-parallel with the kidney. It

FIG. 3.



Verney: From Proc. Roy. Soc. B., 1926, vol. xcix.

A, Temp. of blood at renal cannula. B, Hb per cent. of blood, relative to the initial sample. C, Renal blood flow in c.cm. per min. D, B.P. in renal artery in mm. Hg. At "G" head, neck, and right forelimb were switched into perfusion parallel with the kidney, and at "H" were switched out of the circuit. E, Urine flow in c.cm. per 15 min. F, Urinary chloride (as NaCl) in mg. per cent.

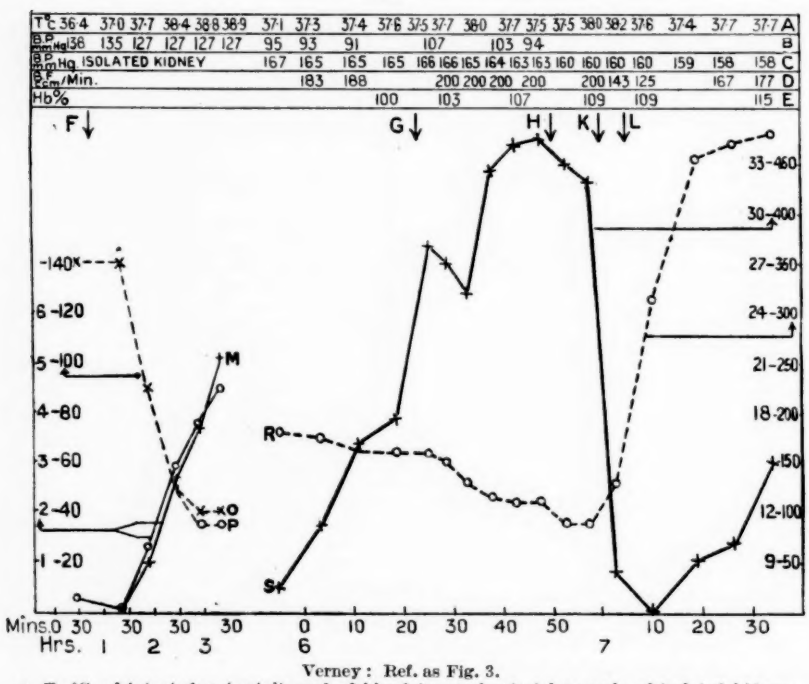
will be seen that this procedure evoked a marked and ingravescent fall in the urinary flow, accompanied by an equally well-marked and ingravescent rise in the percentage of chloride in the urine. Indeed, in this experiment there was actually a rise in the absolute amount of chloride during the period G to H, as compared with that excreted immediately before switching the head into the circuit. At H the head and neck were switched out of the circuit, and it is seen that after a short period of time the polyuria returned, and the urinary chloride began to fall again. Further, it is to be noted that a small diminution in renal blood flow resulted from the passage of the blood through the head of the animal, followed by a recovery during the second polyuria. The blood pressure at the renal cannula was constant throughout the main part of the experiment. Such an experiment, which is illustrative of the results obtained in this series of investigations, proves conclusively that the blood of the heart-lung-kidney preparation, when perfused through the head and neck of another animal, picks up some substance which reacts on the kidney in a manner qualitatively indistinguishable from that of pituitrin.

The second series of experiments was designed to control those which have just been described. It may be said at once that perfusion of the pelvis and hind limbs of a dog in parallel with the isolated kidney has no detectable influence on the polyuria and low chloride output of this organ. On the other hand, the results already described as accruing from the perfusion of the head and neck in parallel with the kidney appear in their entirety when the pituitary body is exposed by temporal decompression. If, however, the pituitary body is first removed and the experiment then proceeded with, the isolated kidney is completely unaffected, as far as my observations go, by the passage of the blood of the heart-lung-kidney preparation through the head. In such an experiment we see a profuse polyuria appearing in the animal from which the pituitary body has been removed. It is clear that the appearance of the polyuria in the animal which is intact except in so far as the pituitary body is concerned, is closely related with the persistence of the polyuria of the isolated kidney during the time that the head of the animal is being perfused. The results of an experiment which illustrates these facts are given in Fig. 4. In this experiment the pituitary body was exposed through the temporal route and the urine collected from each ureter until sufficient for purposes of analysis had accumulated. At the point F in the figure the temporal lobe was gently elevated, the pituitary body freed from its connexion to the base of the pituitary fossa and removed with long forceps. Occasionally in such experiments the body—anterior and posterior lobes—came away cleanly in one piece and the removal was, as far as could be determined with the naked eye, complete. More frequently, however, the body was removed in fragments. Hæmorrhage was very slight, a fact which is doubtless to be correlated with the rapid and profuse branching into vessels of almost capillary calibre of the sheaf of vessels streaming down from the circle of Willis around the stalk of the hypophysis (Dandy and Goetsch).[7] The operations both of exposure and removal were performed under direct illumination from a frontal lamp, so that stereoscopic vision was not interfered with.

It will be seen from the figure that removal of the pituitary body was followed, after a latent period of about 50 minutes, by an ingravescently profuse polyuria and by a concomitant fall in the percentage of chloride in the urine. These acute effects of pituitary removal will be considered later. At present it suffices to note their occurrence, and to state that the resultant polyuria and low chloride percentage respond to intravenous injections of pituitrin in a manner exactly analogous to that of the polyuria and low urinary chloride encountered with the isolated kidney.

After the polyuria had become well established, the chest was opened, and the animal prepared for head perfusion. A heart-lung-kidney preparation was then made. The urine flow and urinary chloride of the isolated kidney are charted to the right of the figure. At G the head and neck of the polyuric animal were switched into parallel with the isolated kidney. There was a small and quite transient fall in the urine flow, which then rapidly mounted again to reach the large value of over 2 c.cm. per minute. The urinary chloride showed no appreciable break in its rate of fall nor was there any diminution in the blood flow through the kidney resulting from the passage of the blood through the head of the animal. At H the head and neck were switched out of the circuit. That the absence of any demonstrable effect

FIG. 4.



Verney: Ref. as Fig. 3.

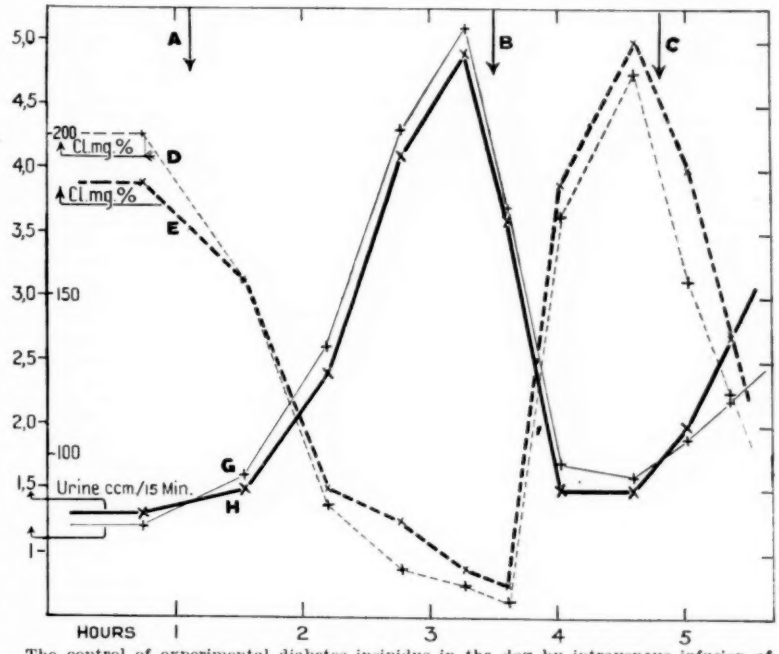
A, T. °C. of intact dog (rectal), and of blood in renal arterial cannula of isolated kidney. B, B.P. mm. Hg in femoral artery of intact dog. C, B.P. mm. Hg in renal artery of isolated kidney. D, Blood flow in c.cm./min. E, Hb per cent. relative to the initial blood sample. M, Urine flow of right kidney. N, That of left in c.cm./15 min. O, Urinary chloride (as NaCl) in mg. per cent. right kidney, and P, that of left. R, Urinary chloride (as NaCl) in mg. per cent., isolated kidney. S, Urine flow isolated kidney in c.cm./15 min. At F the pituitary body was removed from the intact dog. At G the head, neck, and right fore-limb were switched into perfusion parallel with the isolated kidney, and at H were switched out of the circuit. At K 0·02 c.cm. "Infundin" was added to the blood perfusing the isolated kidney, and at L a further 0·01 c.cm. was added.

on the isolated kidney, of the passage of the blood of the preparation through the head of the dog was due to the lack of the pituitary hormone and not to any insusceptibility of the isolated kidney to the pituitary stimulus, was shown by the addition of pituitrin to the blood at the points K and L. The typical response to pituitrin is immediately made manifest.

There seems to be only one interpretation to be placed on the experimental results which have just been recorded: pituitrin is contributed by the pituitary body to the blood during its passage through the head and neck. Attention may be directed especially to the ingravescent manner in which the reaction of the isolated kidney reveals itself during the period of head perfusion, a phenomenon which is readily interpreted by, and indeed is to be expected from, the increasing number of circuits which the blood makes through the tissues of the head. During this time, then, we must assume that the balance of secretion over destruction is turned in favour of the former. It will have been observed that in those experiments in which the pituitary was removed before switching the head into the circuit there was a small inhibition in the rate of urine flow and a small augmentation in the chloride output (see Fig. 4). This was a transitory phenomenon, however, and the reappearance and augmentation of the polyuria and chloride fall in the time during which the blood was still shunted through the head showed that, even if pituitrin were being continuously secreted during this time by the remaining fragments which inevitably escaped removal, its rate of destruction in the blood and tissues was certainly greater than its rate of formation.

There can be no doubt, then, that the copious flow of dilute urine produced by the isolated kidney is due to the fact that the pituitary gland is excluded from the circulation. And the experiments which have just been described have in addition an obvious bearing on the much debated question of the ætiology of diabetes insipidus.

FIG. 5.



The control of experimental diabetes insipidus in the dog by intravenous infusion of pituitrin. At A pituitary body removed. At B infusion of "Infundin" (2 per cent.) commenced, and finished at C. H, Urine flow right kidney in c.cm. per 15 min., and G, that of left kidney. E, Chloride of urine from right kidney, and D, that from left in mg. per cent. as NaCl.

DIABETES INSIPIDUS.

In 1912 Frank [10] drew attention to the association between lesions in the neighbourhood of the hypophysis and diabetes insipidus, and in the following year von den Velden [22] demonstrated that the polyuria of this disease could be completely controlled by the subcutaneous injections of an extract of the pituitary body. Since that time two main views have been held on the ætiology of this disease, each having its adherents both on the clinical and experimental side. According to the one view the polyuria is due to a disturbance of the hypothalamus, leading to a failure of this part of the brain to regulate the output of water and chloride by the kidneys. According to the other view the polyuria is due to interference, either as the result of disease or as the result of experimental intervention, with the functions of the pituitary body. The occurrence of polyuria following the experimental removal of the pituitary body in mammals was reported by several investigators before the work of Frank [10] and of von den Velden [22] was published. Vassale and Sacchi [18] in 1892 noted this sign in some of their experiments and recorded the low specific gravity of the urine. Gemelli [11] also observed it frequently during the first five to six days following "total" ablation of the hypophysis. Crowe, Cushing, and Homans [6] state that following total hypophysectomy in adult dogs the urinary output diminishes to anuria, but that in puppies a transient polyuria is often observed.

Since Frank's paper appeared many investigations have been undertaken with the expressed object of determining more accurately the relation between disturbance in the hypothalamic region and diabetes insipidus. On the experimental side we have the evidence of Camus and Roussy [3] that the polyuria is due, not to ablation of the hypophysis, but to a superficial lesion of the base of the brain in the optopeduncular space. This experience is acquiesced in by Houssay,[13] Leschke,[15] and by Bailey and Bremer.[1] Indeed, Camus and Roussy, and Leschke are agreed that extirpation of the whole hypothesis does not produce polyuria if the brain base is avoided. On the clinical side Leschke [15] has collected many cases in which destruction of the whole hypophysis by tumours, syphilitic and tuberculous disease, and by cisticercus cellulosæ have not been accompanied by diabetes insipidus, whilst pathological processes involving the brain base in the optopeduncular region have been so accompanied. Further, the clinical observation that thirst precedes the onset of the polyuria is often advanced as an argument against the hypophyseal ætiology of the disease.

On the other hand, we have the presence in this region of a body from which an extract can easily be prepared which inhibits in the vast majority of cases the diuresis of diabetes insipidus, whether clinical or experimental. Camus and Roussy,[4] however, state that the immediate polyuria following a lesion in the optopeduncular space in dogs is not controlled by pituitary extract, and that in experimental

polyuria of permanent duration the results of opotherapy are inconstant, without lasting effect, and, when positive, not specifically due to pituitary extract.

Before attempting to correlate the evidence which is at present available in connexion with the ætiology of diabetes insipidus, into a theory which does not run counter to the facts of observation and experiment, I should like to put before you the results of some experiments, 33 in number, which I have performed during the last few years to determine the acute effects of removal of the pituitary body in dogs.[29] All the animals were anæsthetised with chloralose. Some were give a preliminary injection of morphia, others not. To some tap-water was given by stomach-tube in doses ranging between 25 and 40 c.cm. per kg. body-weight, to others no water was administered. In some cases the left kidney was denervated after exposing it in the lumbar region, in other cases the kidneys were not interfered with. In all the experiments each ureter was exposed, by extraperitoneal dissection in the flank, and a cannula tied into position. The pituitary body was then exposed through the temporal route, and a continuous record of the arterial blood pressure obtained. About half an hour later, by which time sufficient urine had been collected for purposes of analysis, the pituitary body was removed. The preliminary exposure allowed its removal with rapidity and ease, and no change in the arterial blood pressure was detectable. Urine samples were then collected till the experiment was brought to a close. Serial sections of the infundibular region of the brain and of the pieces of pituitary tissue which were removed during the experiment, were made. The kidneys were also sectioned with the primary intention of determining whether any fibrosis was present. In 18 of the experiments a well-marked polyuria, varying in different experiments between 4 and 24 times the original rate of urine flow, became manifest. In seven of the experiments there was only a slight increase in urine flow following removal of the pituitary body, and in the remaining eight experiments no increase was detectable.

The results of an experiment in which polyuria appeared to a marked degree are plotted in Fig. 5. It will be seen from this experiment that removal of the pituitary body was followed after a latent period of 30 minutes by an increase in the water output of both kidneys and by a fall in the percentage of chloride in the urine. When the polyuria had reached its maximum figure a slow intravenous infusion of pituitary extract was begun with the object of determining whether this polyuria could be inhibited by this means. It will be seen from the figure that the kidney responds immediately to this infusion by a diminution in the water output and a percentile rise in the excretion of chloride. By carefully regulating the rate of infusion it was possible to maintain the rate of urine flow at approximately its original level. When this was done it was found that the chloride content of the urine had also returned approximately to its original value. The continuous infusion of pituitrin therefore had brought the kidney back to a physiological state indistinguishable from that which it exhibited before its experimental divorce from the pituitary body. This infusion was stopped at c, and after a short latent period, 15 minutes, the increase in urine flow and fall in urinary chloride again projected into the picture. In eight experiments of this type the mean of the rates of infusion which were found necessary to inhibit the polyuria completely was a fiftieth of an international unit per kilo per hour, the extremes being one-hundredth and one-thirtieth of a unit. No experiments have so far been performed to determine whether the oxytocic or pressor factor is responsible for the control of a polyuria brought about in the manner described. It is of interest to know that no change in the concentration of hæmoglobin in the blood accompanies the polyuria. The water therefore passes from the tissues to be excreted by the kidney without producing any obvious signs of its transit.

In those experiments in which polyuria appeared, there was a latent period varying from 25 to 60 minutes between the time of removal of the pituitary body and the time at which the first signs of an increase in urine flow appeared, a delay which is clearly to be attributed to the gradual disappearance of the antidiuretic hormone from the blood stream after its seat of production had been removed. The polyuria was found to be more profuse on the left side in those cases in which the sympathetic nerves to the left kidney had been divided.

The experiments which have just been described would lend strong support to the view that diabetes insipidus is due solely and directly to the lack of the pituitary antidiuretic hormone in the blood were it not for the fact that in 25 per cent. of the cases, as previously stated, the polyuria did not appear. It has not been found possible to correlate this failure of response with the presence or absence of any of those factors which varied or were varied, during the conduction of this series of experiments—namely, the preliminary injection of morphia, the administration of water by the mouth, the sex of the animal, the amount of pituitary tissue which escaped removal, or the degree of injury to the infundibular region of the brain. Neither was the absence of response due to fibrosis of the kidney.

In view of these facts, and of the evidence brought forward by other investigators against the hypophyseal ætiology of diabetes insipidus, it becomes necessary to examine this evidence more closely before discarding a theory to the validity of which so many facts bear testimony. This evidence may be stated briefly as follows:—

1. Extirpation of the whole hypophysis does not produce polyuria if the brain base is avoided. (Camus and Roussy; Leschke.)

2. Polyuria is produced by a superficial lesion of the base of the brain in the optopeduncular space. (Camus and Roussy; Leschke; Houssay; Bailey and Bremer.)

3. Pathological destruction of the whole hypophysis in man is not necessarily followed by diabetes insipidus. (Leschke.)

4. Pathological processes involving the base of the brain in the optopeduncular space are often accompanied by diabetes insipidus. (Leschke.)

5. Thirst often precedes the polyuria.

6. Surgical removal of the pituitary body is not invariably followed by diabetes insipidus. (Verney.)

A study of serial sections of the infundibular region after removal of the pituitary body demonstrates quite clearly the intimacy of the association between the pars tuberalis and the base of the brain. The association is so close that complete experimental removal is impossible without extensive injury to the nerve structures in the floor of the third ventricle. And a considerable body of evidence exists that such complete removal is incompatible with the survival of the animal. Further, destruction of the pituitary body by disease must be shown by serial sections to be complete, before absence of polyuria in such conditions can be brought forward as unequivocal evidence against the part played by the hypophysis in producing diabetes insipidus. And this has not been done. On the other hand, the non-appearance of the polyuria when the pituitary body is only partially removed is clearly not evidence against the polyuria, when it appears, being due to deficiency in the secretion of pituitrin. Further, it may be pointed out that a polyuria resulting from injury to, or disease in, the hypothalamic region does not preclude the possibility of the hypophysis being concerned in its production. Nor can the impotence of pituitrin to inhibit the polyuria in certain cases be accepted as evidence against the hypophyseal ætiology of the condition, unless the activity of the preparation is concurrently controlled by the production of positive

results in other cases. Again, the fact that the sensation of thirst sometimes precedes the onset of polyuria is clearly not irreconcilable with the view that the polyuria itself is due immediately to an inhibition of the activity of the pituitary body in so far as the secretion of the antidiuretic principle is concerned.

We may conclude that no evidence of an incontrovertible nature exists at the present time against the view that the polyuria of diabetes insipidus is due immediately to an inhibition or arrest of the secretion of an antidiuretic principle by the pituitary body, and that there exists a strong body of evidence in its favour.

We may now consider for a moment those experiments of the series to which reference has already been made, in which subtotal removal of the pituitary body was not followed by a copious flow of urine. It may be that the remaining fragments of pituitary tissue were still secreting a quantity of the antidiuretic hormone sufficiently great to prevent the appearance of the polyuria. On the other hand, it may be that in these cases the kidney itself failed to respond to the withdrawal of the hold which the pituitary hormone was previously exerting. We must remember that the incidence of the polyuria in all probability demands an increase in the work done by the kidney, and it has been shown in the case of the isolated kidney of the dog, that the inhibition of the polyuria of this preparation by pituitrin is accompanied by a fall in the oxygen consumption of the kidney (Fee and Hemingway [9]). It may well be that the kidney must be in a reactive state—in a condition of good "tone"—before it can respond to the removal of the inhibitory influence of pituitrin. The reins may be slackened, but the horse does not of necessity increase its pace. This conception of the condition of the kidney itself contributing to the degree of its diuretic response, gains in plausibility when it is pointed out that in my own series of cases it was observed that this response to the removal of the pituitary body was much more likely to occur in the case of young and lively dogs than of those older in years or more phlegmatic in temperament. And in man diabetes insipidus is a disease affecting young people. Further, as we shall see in the next lecture, a diminution in the reserves of the isolated kidney leads to a diminution in the antidiuretic response to a given concentration of pituitrin in the blood. It is evident, then, that the condition of the kidney itself is to be regarded as an important factor in determining whether, and if so to what degree, it will respond to a diminution in the secretion of the pituitary body.

The symptom of thirst, which may be the initial complaint in diabetes insipidus in man, leads us to a consideration of the mechanism involved in the response by the kidney to the intake of large volumes of water by the mouth.

Polyuria Following Water Ingestion.

If a large volume of water be drunk by a healthy man a great increase in urine flow soon becomes evident, and the volume of water ingested is rapidly and quantitatively excreted. 2000 c.cm. of warm tap-water swallowed in 12 minutes by one man were completely eliminated within four hours, the maximum rate of flow, 12 c.cm. per minute, being reached about 50 minutes after the beginning of the ingestion. An increase from the resting level of excretion was detectable within 20 minutes. In the case of another healthy man the ingestion of 2500 c.cm. of warm tap-water in 15 minutes was followed by an increase in urine flow, detectable within 30 minutes of the beginning of the experiment, and mounting rapidly to reach the high rate of 22 c.cm. per minute 90 minutes after the beginning of the experiment. In this case the volume of water drunk was quantitatively eliminated within three hours. There is thus considerable variation among normal men in the type of curve obtained by plotting rate of water elimination against time. In some the curve is flattened and somewhat protracted, in others higher and less prolonged.

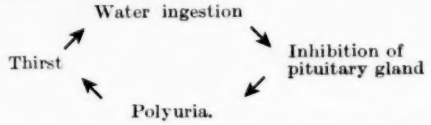
Any changes from the normal, of a physical or chemical nature, in the blood during this large diuresis, and to which this response by the kidney can be referred are conspicuously absent. Haldane and Priestley [12] showed that the enormous diuresis caused by ingestion of water was not dependent on the general dilution of the blood, although Priestley [16] was able to detect a small diminution in the electrical conductivity of the serum under these conditions. Further, no change is detectable in the osmotic pressure of the plasma proteins at the height of the diuresis from its value immediately before the ingestion of the water.[20] If, on the other hand, water or hypotonic saline be slowly injected intravenously into the dog a diminution rather than an increase in the rate of urine flow occurs.

What, then, in the absence of any blood changes which might be regarded as sufficient in themselves to evoke so gross a diuresis, is the stimulus to the kidney causing it to react in so perfect a manner by secreting a copious urine of extremely low specific gravity? The whole experimental investigation of the question is surmounted by the difficulty that water diuresis cannot be produced in animals when under the influence of an anæsthetic. When water (30 to 40 c.cm. per kg. body-weight) is introduced into the stomach of a dog under chloralose anæsthesia this water is rapidly absorbed from the gut, and its passage into the tissues is proved by the fact that no variation in the concentration of hæmoglobin in the blood occurs during this absorption.[20] But the water fails to pass from the tissues to be excreted by the kidney.

We have already seen that subtotal removal of the pituitary body in dogs is followed in favourable circumstances and after a latent period of 30 to 60 minutes by a profuse flow of urine of low specific gravity, and that the water is transported from tissues to kidney without there being detected any changes in the state or composition of the blood. Is it possible that when water is ingested by man or is introduced into the stomach of an unanæsthetised dog the increased load of water in the tissues, following its absorption, produces, through the intermediation either of a chemical messenger or of the nerve channels subserving the sensation of thirst, a temporary inhibition of the secretion by the pituitary body of the antidiuretic hormone, and the consequential excretion by the kidney of a copious and dilute urine? The only direct piece of evidence in favour of this hypothesis is the fact that, as Priestley [16] showed, water diuresis in man can be completely inhibited and delayed for a period of four to six hours by the intramuscular injection of small amounts of an extract of the pituitary gland. But when to this piece of direct evidence we add evidence of a more indirect character obtained from a comparison of the course, nature and responses of the diuresis following water ingestion with those of the polyuria of the isolated kidney and of experimental diabetes insipidus, conviction as to the truth of this hypothesis gradually gains ground. In all three conditions the character of the urine is the same, and in all there is a latent period of approximately the same duration between the laying down of the primary stimulus, be it isolation of the kidney, removal of the pituitary body, or the ingestion of water, and the diuretic response by the kidney. All react in precisely the same manner to the administration of an extract of the pituitary body, and both in diabetes insipidus and in water diuresis the doses of extract required to produce inhibition of urine flow are of the same order of magnitude. Again, in none of the three conditions has any change in the composition of the blood, to which the diuresis might be ascribed, been detected.

Perhaps the thesis of this lecture, in so far as it is an attempt to show the common part played by the pituitary body in the disturbances of urine secretion

which we have been considering, may be summarised in diagrammatic form as follows:—



The polyuria following isolation of the mammalian kidney is due to the removal of this organ from the normally sustained antidiuretic action of the secretion of the pituitary body. Diabetes insipidus is due to the divorce of the pituitary body from the kidney, whilst water ingestion in all probability leads to a temporary inhibition in the function of the pituitary, and so to the release of the kidney from its antidiuretic influence; though the mechanism by which such a physiological inhibition is produced is, at the present time, by no means clear.

It is fascinating to think that the kidney, during the appearance and disappearance of the polyuria which we have been considering, may be recapitulating in the course of a few hours a retreat towards and an advance from the state in which our kidneys functioned in those far-back days when, eft-like, we crawled from the water to pursue our phylogenetic development on land.

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THE USE OF AVERTIN FOR ANÆSTHESIA.

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AVERTIN was first made by R. Willstätter and W. Duisberg in 1926 and introduced into practice by Prof. F. Eichholz. Later he requested Dr. H. H. Dale to further the trial of it by English anæsthetists, and the matter was brought before the Anæsthetics Committee set up by the Medical Research Council and the Section of Anæsthetics of the Royal Society of Medicine. Through this committee, of which we are both members, we have been enabled to obtain supplies of the drug, which is not yet on the market in the ordinary way, from Bayer Products Ltd., and to facilitate the supply to others who wished to try it. These investigators, Basil Hughes, F. J. Morrin, and F. P. de Caux, have kindly sent us their reports. The substance of these is incorporated in this paper, which we are publishing at the request of the Anæsthetics Committee.

Chemical and Physical Properties of Avertin.

Avertin is tribromethyl alcohol (CBr_3CH_2OH), a white crystalline powder soluble with difficulty in water at body temperature to the extent of 3·5 per cent. In making the solution prolonged shaking is needed to avoid the formation of lumps. For anæsthetic purposes it is used per rectum. It has a slightly brackish taste and smell. The solution is unstable and therefore must be prepared shortly before use. If it decomposes dibromacetaldehyde is formed, which is highly irritating to the intestinal mucous membrane. In order to be sure of the purity of the solution it is tested immediately before use by adding two drops of 1–1000 Congo red to 5 c.cm. of the solution. No blue coloration must be produced.

Obviously the preparation of a solution which required such considerable time and care—taking as a rule about three quarters of an hour—was a practical disadvantage to the use of avertin. This has been got over by the makers, who now provide a fluid avertin, a liquid in which the solution of avertin is kept stable by the presence of amylene hydrate. All our earlier cases were conducted with solutions made from the powder, all the later with the fluid avertin. We find little difference in the behaviour of the two as regards their anæsthetic nature, but the fluid preparation seems more effective and less likely to be attended by respiratory depression. The "fluid avertin" provides one gramme of avertin in each cubic centimetre of the liquid. The solution for injection is made by adding distilled water at 40° C. The two must be well shaken or avertin is apt to crystallise out, but the preparation of the necessary amount and testing is now only a matter of a few minutes. Although "fluid avertin" is itself stable, strict care is still necessary in preparing the solution with distilled water for rectal injection. The proper heat 38°–40° C. must not be exceeded, and the Congo red test must be applied before injection. We have carefully investigated the stability of the solution for injection and find that it remains undecomposed for at least 48 hours at ordinary room temperature.

H. Gainsborough and J. A. Gardner kept a solution of solid avertin, 3 per cent. strength, made in distilled water at 32° C. at ordinary room temperature for 14 days. At the end of that time it was still neutral to Congo red. The solution was then raised to boiling-point, after which it showed acidity to the same test. Liquid avertin under the same conditions showed no decomposition at the end of five days. Some of the solution was then placed in a quartz vessel and exposed for 12 minutes to the light of an iron arc, after which it showed the presence of a trace of mineral acid.

The practical deduction from the above investigations is that if the solution of fluid avertin prepared for injection is kept at a temperature of about 32°–38° C. and not exposed to light it may be used even several days after preparation. The results referred to are confirmed by some experiments carried out at Guy's by E. Williamson.

If allowed to cool avertin crystallises out and, of course, if the solution is heated much above 40° C. decomposition readily takes place. The hydrobromic acid thus formed is at once detected by the Congo test, and we believe in practice that the use of this simple test of the solution just before injection completely prevents any danger from the use of an impure liquid.

In no patient of our series have we had any evidence of local damage or irritation to the bowel from the injection, an important consideration with all rectal anæsthetics. The use of paraldehyde, for example, has been by no means equally free from accidental damage to the lining of the bowel.

Results of Administration.

Although the number of cases (198) on which this account is based is not great, yet we think that they are enough to provide a sound basis for estimating the true value of avertin. For the patients have been subjects of a wide range of operations, from simple measures such as ligature of piles to laryngectomy, gastrostomy for carcinoma, hysterectomy, and thyroidectomy for exophthalmic goitre, and we have purposely chosen not only typical examples of healthy persons at various stages of life, but also those who were essentially poor subjects for operation and anæsthetics. The two fatalities which we met were both in subjects

of the latter class. In one we consider that avertin can be wholly exonerated. In the other it is probable that it played a part, but just how important a part is by no means clear. As, however, in the early days of a new anæsthetic all cases are important which tell against it at all we give details of these two.

The first of these two patients was a woman aged 26, the mother of one child, suffering from a severe degree of mitral stenosis and aortic regurgitation. She was dyspnœic and cyanosed. Her weight was 9 st. 2 lb. She was seven months' pregnant and after a consultation it was decided that the pregnancy must be terminated and that at the same time, with a view to future safety, the patient should be sterilised. A subtotal hysterectomy was decided on as the best measure. The patient's condition as to circulation and respiration made it appear highly improbable that she could survive any inhalation anæsthetic. The choice was held to lie between a spinal injection and avertin. The latter was chosen and a dose of 5·8 g. in 200 c.cm. distilled water was administered at 10.35 A.M., after gr. 1/3 omnoform half an hour previously. At 11.5, when moved to the operating theatre, the patient was muttering and not fully unconscious. Ten drops of chloroform-ether mixture were given from an open mask. The further progress of the case is indicated by the following notes:—

11.14 A.M.: Corneal reflex still brisk and the dose of C.E. repeated.
11.15: Slight movement of legs on cleaning up abdominal skin; no further anæsthetic given.
11.17: Skin incision—a slight movement of legs. Patient slightly cyanosed.
11.19: Uterus delivered.
11.20: Tubes clamped.
11.22: Oxygen administered.
11.24: Colour improved. Pulse 112, strong.
11.26: Uterus removed.
11.30: Corneal reflex perceptible; pupils small.
11.51: Peritoneum being closed; corneal reflex brisk; slight movement left hand.
12.8 P.M.: Operation completed. Pulse 129; respiration-rate 34; colour fairly good. Surgeon regarded anæsthesia during operation as perfectly satisfactory.
12.20: Patient back in bed.
1.10: Patient conscious; condition fairly good, but many moist sounds in chest.
3: Condition not so good. Much coughing of frothy fluid and pulse very rapid. Hypodermic of atropine, gr. 1/50.
3.20: Pulse 140, respiration-rate 36. Cyanosis; oxygen given for ten minutes.
3.45: Patient gradually became unconscious; caffeine injected. Died at 4.15 P.M.

Post-mortem examination showed aortic incompetence, the aortic cusps being thick and incompetent, mitral stenosis of a high degree, and lungs with much œdema but no consolidation.

The other case was of quite different type. The patient was a coster, aged 54, weighing 12 st. 11 lb., complaining of a large tumour of the neck and hoarseness. The diagnosis was a large cystic adenoma of the thyroid with compression of the trachea. The patient was thickly built, with highly coloured face, short neck, and fat abdomen—obviously a difficult subject for anæsthetics. It was thought that the use of avertin by abolishing or greatly diminishing the inhalation anæsthetic would be of great service. He was given omnoform, gr. 2/3, at 12.30 P.M. and avertin at 1.50. The dose injected was 8·57 g. in 250 c.cm. of water at 40° C. (i.e., 0·125 g. per kg. of body-weight). It was noticed that the omnoform had produced no drowsiness at the time of giving the avertin. Unconsciousness was produced without any excitement and at 2.10 the corneal reflex was gone.

The operation was begun at 2.30. The skin-cut produced very slight reflex and no general anæsthetic was administered. By 3 o'clock the cyst was completely freed and the patient's stertor ceased. There was considerable trouble with bleeding before the operation was finished at 3.20. When the dressings were about to be applied it was seen that some bleeding into the wound was still going on, so the stitches were removed, the wound reopened, and the bleeding satisfactorily dealt with. At 3.35 the skin was sewn up and dressings put on. The man's condition throughout had been good and no anxiety had been caused by the hæmorrhage. Anæsthesia was all that could be desired. The subsequent notes supplied by the house surgeon were as follows:—

6.30 P.M.: Corneal reflex not returned, pupils contracted. Pulse 120; tends to be irregular. Respirations not deep, but quite regular. No cyanosis. Rectal salines administered.
12 midnight: Slight corneal reflex. Pupils still small. Pulse and colour good. Does not reply to questions.
6 A.M.: Breathing not so good. Pulse poor in volume. Stimulants ordered.
9.30 A.M. Heart failure. Respirations shallow, but regular up to the time of the pulse failing. Artificial respiration and strychnine did not have effect.

The facts of this case suggest that a perfect anæsthesia on the table was procured at the price of an overdose. The dosage of avertin employed (0·125 per kg.) has often been exceeded with safety, but it is possible that in conjunction with the effect of omnoform, gr. 2/3, it was excessive. On the other hand, the patient was a bad type of subject, and it is possible that his heart would have given out after the operation even had this been performed with an ordinary inhalation anæsthetic, or with an intratracheal administration.

Premedication and Administration.

The German workers almost without exception gave their patients a dose of veronal or some similar drug on the evening before operation. We have consistently omitted this, and have not found any reason for adding the extra sedative. We have used as a routine either morphia-atropine or morphia-scopolamine (F. E. S.), or else omnopon alone (J. B.), given one and a half to one hour before operation. Our experience is that these hypodermic injections enable a weaker dose of avertin to be effective than that which can be successful without their aid. The rectum should be washed out the evening before operation, and it is important not to have this repeated within a few hours of giving the avertin.

We have found that with the ordinary routine preparation of patients for operation, and a rectal wash out with simple water on the evening before the day of operation, conditions have been perfectly satisfactory for the use of avertin any time between 9 A.M. and 1 P.M. on that day. The patient lies in bed on the left side and the avertin solution at a temperature between 35° and 40° C. is slowly run in from a funnel through a small calibre soft rubber tube or catheter. This should be vaselined and passed at least four inches beyond the anus. Not less than ten minutes should be spent in introducing the solution. After it is all in, the tube may be clamped and left in position, or withdrawn and a tampon of cotton-wool with boric ointment applied. It is a great advantage if the anæsthetist can himself be present when the injection, which is entrusted to a nurse, is carried out. He may be able, by noticing the onset of unconsciousness and the general reaction of the patient, to reduce the prescribed dose, as we have several times done, or, on the other hand, he may realise the necessity for additional anæsthetic later. In any case the person entrusted with the injection must be sufficiently skilled to be safely entrusted with a deeply unconscious patient. She must know how to prevent mechanical obstruction of the upper air passages, for the tongue is easily drawn back with inspiration so as to obstruct the larynx, in the patient fully under avertin, just as it is in the case of inhalation anæsthetics. There is, however, none of the local congestion associated with inhalation anæsthetics and consequently the airway is more easily preserved.

Dosage.

The dose used has been between 0·09 and 0·15 g. per kg. of the patient's body-weight, given in a 3 per cent. solution with distilled water. One of us (J. B.) has used, except in his first few cases, nothing but the dose of 0·1 g. per kg. always preceded by gr. 1/3 of omnopon. All the evidence so far secured shows this to be a safe procedure. On the other hand, the anæsthesia obtained is, of course, often inadequate

ard has to be supplemented, usually by a little ether. One-third of the cases required no anæsthetic in addition to the avertin. By stronger doses of avertin, 0·13 g. and 0·15 g. per kg., the necessity for additional anæsthetic arises less often (F. E. S.).

The question of the correct dose is the most difficult one in connexion with avertin, as indeed with any rectal anæsthetic. If only a perfectly safe amount is injected this will often be inadequate and will have to be helped out by inhalation or by local analgesics, the method favoured by Mr. Basil Hughes. If, on the other hand, maximum doses are employed, although the anæsthesia will much more often be adequate without any supplementary method, yet the risk of overdose must necessarily be great. For gauging the dose by the body-weight is, after all, only a rough guide, and we all know the varied way in which different patients react to narcotic drugs, although the reason for the difference in their behaviour is generally obscure. Consequently we believe that the former of the two methods mentioned should be followed and that avertin should be used to provide the induction of narcosis and an excellent basis on which with comparatively little inhalation a perfectly satisfactory anæsthesia can be established.

Another safe method that has been much practised by some German surgeons meets with the approval of Mr. Morrin, who has used it with success. This is what is called fractional administration. A dose is first given equivalent to 0·1 g. per kg. of body-weight. If after 15 minutes the patient is sensitive to pain a further dose of 0·025 g. per kg. is given, and this is repeated if necessary till the maximum of 0·15 g. per kg. has been injected. This method requires that the rectal tube is kept in position and, of course, there may be some inconvenience in continuing the injection on the operating table. We have preferred the method of reinforcing the narcosis of avertin when necessary by inhalation anæsthesia. Sometimes gas and oxygen has been used, but most often a small amount of open ether or of C.E. mixture.

Effects of the Injection.

Avertin is rapidly absorbed from the bowel. Symptoms are generally produced within a few minutes, and we are satisfied that the whole amount introduced does actually leave the bowel, because we have in many patients had the bowel washed out after return to bed and the wash-out carefully examined for avertin. None has ever been discovered. Morrin has recovered some fluid when the bowel has been washed out within 40 minutes of the injection. We have never washed out as soon as this, believing that it takes about 45 minutes for the whole injection to be absorbed. Consequently we do not think there is any advantage in leaving the rectal tube in situ for the purpose of withdrawing avertin solution should symptoms of overdose appear in long operations.

Avertin produces unconsciousness more quickly and quietly than any similar drug with which we have had experience. We have seen no example of excitement nor any evidence of unpleasant taste or other sensation. The usual process is that after a few minutes the patient's eyes close and he responds languidly to questions; usually within 15 minutes he does not answer at all. If his eye reflexes are now tested the conjunctival is quite absent and the corneal usually so, too. The pupil is very small, but reacts to light. The general musculature appears relaxed. Respiration is quiet and regular, often with stertor from the relaxed jaw and tongue, and the pulse is in accordance with the breathing. There is slight fall in blood pressure, usually about 10 mm. Hg. It is greater in proportion as the strength of the dose is increased. The colour remains normal if due care is paid to the airway. If the patient is now, some half hour after his injection, placed on the operating table his appearance suggests that he is fully anæsthetic. The application of iodine or picric acid and of the towel clips will, however, often elicit slight reflex movements, and then a small amount of general anæsthetic had better be at once given before incision. The amount required will be quite small (e.g., 2 drachms of ether on an open mask) and may not have to be repeated. On the other hand, we have had to use as much as 7½ oz. of ether.

Another test for the real depth of narcosis which has been found useful is to apply an open mask, well wetted with ether, close to the face. If there is no alteration in the breathing, from irritation of the larynx, the operation can be begun without fear of any inconvenient movement on the patient's part.

In the course of operation we have found no untoward effects of avertin on the respiration or circulation. The breathing goes on quietly and regularly. The blood pressure has never fallen more than 30 mm. Hg unless the severity of the operation itself produced a fall. We have never had to apply any kind of restorative measures on the table. Apparently those most likely to be required are direct respiratory stimulants (lobeline or CO_2) or else ephedrine to restore blood pressure. The above description of the effects of avertin is true of the vast majority of cases. The exceptions have been provided by alcoholic subjects. In these nothing more than a stupefying effect may be obtained, with an associated amnesic effect, so that next day, although a large amount of general anæsthetic has been given, the patient remembers nothing after the rectal injection.

Recovery Period.

The patient remains unconscious generally for about three hours after return to bed. During this time, however, the corneal reflex is brisk and the sleep is light, so that probably it could be broken if necessary by any violent stimulation. The importance of this is that during this period foreign matter probably could not enter the larynx without being ejected, and we do not think that avertin need be avoided in operations which involve the air passages for fear of inhalation of blood afterwards. For these cases, however, it would probably be safer to omit all preliminary sedative medication.

Mr. Morrin's operations, a large proportion of which were diathermic coagulation for extensive carcinoma of tongue or tonsil, bear favourably on this point.[1] His remarks may be quoted that "avertin anæsthesia, by allowing accessibility to the growth and free intra-oral manipulation, marks a great advance in the operative treatment of lingual and oral carcinoma."

The after-effect of avertin is really more a prolonged period of analgesia and amnesia than a true unconsciousness, and this long period of freedom from pain is often an advantage. Chest complications have been absent, as was expected, since elimination of avertin does not take place through the lungs. It is got rid of by way of the liver and kidneys in combination with glycuronic acid. Assuming that it appears in the urine as a glycuronate, in four or five cases Gainsborough and Gardner made daily analyses of the urine for two to four days and accounted for from 20 per cent. to 64 per cent. of the avertin administered. They concluded, however, that the methods of estimation were unreliable and required further investigation. German observers have found as much as 80 per cent. Attempts were made to determine the amount of avertin in the blood, based on the quantity of combined halogens, but the differences were so small as to be within the errors of experiment.

After-effects have been noticeably absent. There has been no affection of the lungs when avertin only has been used, nor indeed, with slight exceptions, in the other cases which had supplementary anæsthetics. One of these patients (de Caux), after a gastro-enterostomy carried out with avertin and gas and oxygen, developed purulent bronchitis from which he recovered. This man had 0·125 g. per kg. and remained cyanosed for nine hours after operation and was still drowsy after 24 hours. Nausea and vomiting in the great majority of cases have been absent.

[1] See THE LANCET, March 2nd, p. 448.

Conclusions.

There appears to be no contra-indication to the use of avertin on the score of age. Basil Hughes speaks enthusiastically of its use for children, combined with infiltration anæsthesia, and some of our own most satisfactory experiences have been with aged persons. Nor does any state of bodily health, except rectal disease, apparently forbid its use. Cachectic, feeble persons suffering from carcinoma of the œsophagus have undergone gastrostomy under avertin anæsthesia with complete success, and the same result attended an operation for gall-stones in the jaundiced subject. Nevertheless we would not use the drug if the liver or kidneys were known to be seriously diseased.

We believe that its use has especial value: (1) for patients who dread the anæsthetic, or have suffered after former anæsthetics; (2) for the subjects of exophthalmic goitre, or others in whom the psychic aspect of the matter is of real import; (3) for patients who have to undergo long operations not requiring very deep anæsthesia—e.g., long operations on bones, plastic operations, laryngectomies; (4) for injections for trigeminal neuralgia; (5) for patients who suffer from any pulmonary complaint; and (6) in prolonged operations about the head and neck. We do not think avertin, being administered by a single dose method, should be used for operations likely to cause rapid fall of blood pressure.

We consider avertin to be a valuable addition to the drugs at the disposal of the anæsthetist, and that if used with due care and moderation its advantages can be taken advantage of with perfect safety.

We wish to acknowledge the assistance of members of surgical staffs of Guy's and St. George's who have kindly allowed us to use avertin for operation cases; and also the valuable help given to one of us by Mr. G. Edwards and Mr. L. N. Lewis, resident anæsthetists at St. George's.

AIR-TIGHT SUCTION DRAINAGE OF THE CHEST.

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Resection of a piece of rib for the purpose of draining the chest has been a life-saving operation, and the procedure may be regarded as a milestone on the road of thoracic surgery. Nevertheless this method will not save every patient who has an empyema, and in certain conditions the mortality which follows open drainage of the chest is too high to be regarded with complacency. For example, in very young and in old sufferers open drainage is not a satisfactory therapeutic measure, and it falls short in the cure of infective pleurisy associated with pneumonia or other grave concomitant lesion, and in the acute septic effusions which are not bounded by pleural adhesion prior to the opening of the chest. The mortality which attends rib resection in these cases, and the complications which are apt to follow, have received full recognition, and many attempts have been made to elude the drawbacks by effecting some form of drainage which would allow the egress of septic fluid from the chest while preventing the ingress of air to the pleural cavity. For the most part these endeavours have not been successful, but a real step forward was made by Poynton and Reynolds,[1] who, under the title of a Method for Diminishing Mortality in Empyema in Infancy and Childhood, introduced a technique which they had devised with the special object of emptying the pleural cavity and maintaining continuous drainage by aspiration without at any time exposing the cavity to the outside air and secondary infection. Poynton and Reynolds use a special trocar and cannula. The latter is fitted with a broad flange which fits against the chest wall, and suction drainage is effected by means of a rubber tube which fits the cannula tightly, having been passed through it while on the stretch, like a self-retaining catheter, and which is connected up with a White's continuous suction apparatus (Fig. 1). The object of the present communication is to propagate the views and method of Poynton and Reynolds, to advocate their application to the treatment of empyemata in adults, and to offer a few suggestions appropriate to the practical side of the question.

[1] The Lancet, 1921, ii., 1100.

With regard to the advantages of continuous air-tight suction over rib resection in the treatment of these infected pleural effusions in children I will take the liberty of quoting freely from the original paper by Poynton and Reynolds. They mention the following:—

1. The period of illness is shortened. In cases treated by rib resection the average time before the wound is healed is six weeks; with the method described above the average time between insertion of the cannula and complete healing has been 15 days. The explanation of this advantage is that:—

2. There is no secondary infection of the pleural cavity. The rubber tube has a larger lumen than the cannula, so that, when released from the introducer, it expands and fits the cannula tightly, preventing any leakage of pus, soiling of the wound, and reinfection backwards to the pleural cavity. Another important point in the shortening of the illness is that osteomyelitis of the rib, so common after resection, does not occur.

3. No anæsthetic is required. The whole procedure can be carried out in a few minutes, causing very little disturbance and without removing the patient from bed, thus eliminating all the risks attendant upon moving a seriously ill child to the theatre and giving an anæsthetic.

4. Surgical trauma and its consequent shock are reduced to a minimum. The pain and discomfort of inserting the trocar are no more serious than exploration with a needle.

5. No daily dressing is required. Those who have seen what mental and physical suffering so many children endure for weeks after resection of rib will readily appreciate what a relief this method will be to all concerned.

6. The patient can assume any required position without fear that drainage will be interfered with.

7. The drainage is continuous and complete. Pus cannot collect in the bottom of the cavity and depend upon the position of the patient or upon expiratory efforts for its expulsion.

8. Expansion of the lung is assisted. The suction produces a negative pressure of 8 mm. Hg; this being more than the normal negative pressure of the pleural cavity, the lung tends to expand and assume its normal function more readily.

9. The removal of the pus is gradual. The continuous suction causes a steady slow outflow of pus, and it is some hours before the cavity is emptied; a displaced heart is thereby allowed to reassume its normal position quietly and gradually without the suddenness which is bound to occur if incision and drainage are employed. This fact is important when one recalls cases of syncope due to sudden withdrawal of pus and the replacement of a displaced heart.

To this long list of advantages may be added:—

10. A recovery which is complete and unclouded by any necessity for those subsequent operations for decortication of a collapsed lung and extensive resections of rib that are sometimes required in order to obliterate the septic cavity remaining after the old operation, even when it has been "successful." The patient who, by suction drainage, has surmounted the immediate danger of an empyema will be free to thank Providence whole-heartedly for his recovery—a happy lot which, as we all know, does not invariably fall to those who have undergone treatment by open drainage.

11. Lastly, and perhaps most important of all, is the avoidance by air-tight suction drainage of any spread whatever of the area of pleural sepsis. With an open operation, on the other hand, accompanied as it must be in non-localised effusions by some separation of layers of pleura previously in contact, a spread of pleural infection is unavoidable.

The Drawbacks.

1. *A delirious patient may pull out the tube.*—This happened in a patient of mine, aged 54, in whom a right-sided empyema supervened on a double pneumonia. Luckily the hole through which the tube had been removed remained air-tight. A fresh catheter was inserted into the empyema cavity at a point as remote as possible from the former puncture and an uneventful recovery ensued—uneventful, that is to say, except for a local cellulitis of the chest wall which, however, quickly subsided without causing great constitutional disturbance and without necessitating any incisions.

2. *Cellulitis of the chest wall.*—This remains the one hitherto ineradicable drawback to the method. With the precautions which will be mentioned presently I do not believe the danger to be very great, even in cases of acute hæmolytic streptococcal infection, in which it is of the utmost importance to avoid any spread of the pleural infection such as is bound to occur with open drainage. In any case, a cellulitis of the chest wall is less likely to kill the patient, and is more easily dealt with than a wide-spreading streptococcal pleurisy accompanied by collapse or contraction of the lung and by profound toxæmia.

3. *Insufficient drainage due to blockage of the tube.*—This is largely a myth used for purposes of destructive argument. The suction does sometimes fail to be effective, and this may be due (supposing the disease to be still active) to one of two causes—namely: (*a*) the drainage-tube may be obstructed by a mass of fibrin, or (*b*) the tube may be inserted at too low a level in the chest wall, in which case, as the empyema cavity diminishes in size, the dome of the diaphragm comes into contact with the chest wall and so shuts off communication between the residual pleural fluid and the rubber drainage-tube.

(*a*) Blockage by fibrin is to be dealt with in this way. The drainage-tube is secured with a clip to prevent the entrance of air, and is then detached from the suction apparatus. Then, with a glass syringe, a few ounces of warm solution of eusol (I have used diluted "Milton" for the purpose) is slowly injected into the pleural cavity, the clip on the drainage-tube having been removed for the purpose. The suction apparatus is then connected once again with the drainage-tube. If recurrent blocking occurs this treatment may be repeated.

(*b*) The more common cause of defective or intermittent drainage is contact of the diaphragm with the chest wall above the drainage-tube owing to the latter being too low down, especially if the opening happens to have been made in the mid-axillary line or in front of it. The diaphragm comes readily into contact with the chest wall as high as the sixth rib in the mid-axillary line and the eighth rib in the posterior axillary line, so that if a tube be introduced at or below these levels it must be thrust far enough into the pleural cavity to avoid the possibility of its being smothered by the diaphragm. Supposing the worst to happen, and that suction drainage cannot be established, even by trying the remedies and observing the precautions just mentioned, or by inserting the tube at a different place in the chest wall, it will still be possible to resect a rib and perform open drainage. And when the surgeon is skilled, as every modern surgeon must be, in the use of local anæsthetics, the patient will have been put to very little pain and inconvenience by the previous efforts to drain his chest.

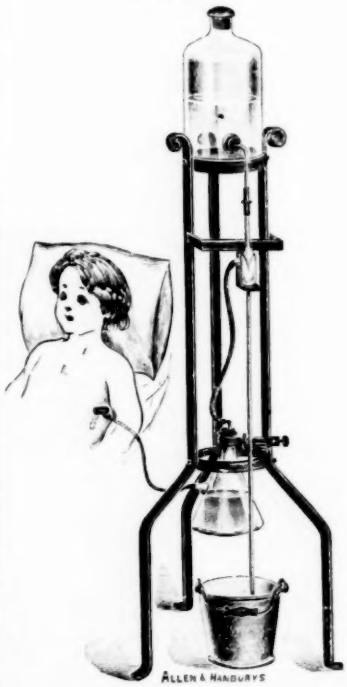
4. *The apparatus is unwieldy and tiresome to use.* The apparatus is cumbersome, but to admit this as a factor in our choice of therapy is to place the convenience of the medical attendant before that of his patient. In practice the method is not at all tiresome—far less so than the frequent dressing of an open empyema wound. The large reservoir supplying the hydraulic pump will only need refilling once in 12 hours or thereabout—a trifling labour—that is to say, with the interrupted stream flowing properly at the rate of between 60 and 100 drops in each minute.

5. *The possibility of damaging the diaphragm or lung with the large trocar.*—I have feared the danger, though I have not experienced the accident. As a measure of safety I had a set of trocars made for me with truncated points, but these have the disadvantage that they will not always perforate the parietal pleura, to achieve which a narrow-handled tenotome will be necessary. Perhaps I have been unwarrantably apprehensive of this supposed danger when an ordinary trocar is used.

Alternative Procedures.

(1) It may be argued that in a case of infected pleurisy, especially when this condition is due to the pneumococcus, it will be desirable to open the chest widely in order to clear out the large masses of infected fibrin. This seems sound enough. I have suffered from repentance and remorse after an apparently successful operation of this kind, which at the time seemed most satisfactory, handfuls of clot having been found in the pleura and removed, but the death of the patient put me in the wrong. The fact is, that these large thoracotomies not only require considerable experience and skill for their performance, they not only demand as an essential the use of intratracheal anæsthesia or of a pressure chamber, but the operations are very severe on the patient, who may easily be overwhelmed by such a drastic remedy. Moreover, the test of experience will almost certainly prove that air-tight suction drainage is curative for these patients, and in the face of experience all hypothetical suppositions must be relinquished.

FIG. 1.



Apparatus as used by Poynton and Reynolds. The present author differs in not using a retained cannula.

FIG. 2.

Dowse's self-retaining catheter with expanded end.

(2) Siphon drainage has been tried in place of active suction. That is to say, a drainage-tube is inserted into the pleural cavity through a trocar,

the other end of the tube being allowed to hang down over the edge of the bed into a bottle of antiseptic lotion standing on the floor. In practice, again, this alternative does not fulfil as it should the theoretical hopes which have so often been based upon it. The method is too seldom attended by success and cannot be regarded as an equivalent of, or as a substitute for, active suction, and the same drawback of ineffectiveness attends the use of valvular drainage.

When the pleura is acutely infected by hæmolytic streptococci there is but one alternative to air-tight suction drainage, and that is repeated aspiration, for it is now generally recognised that open drainage by rib resection in this type of case is a grave surgical error. Unfortunately, it is in these very infections that there is the greatest danger of cellulitis of the chest wall, and this danger accompanies both repeated aspiration and suction drainage. The actual risk from this complication, although not to be ignored, has been exaggerated; for we are not destitute of measures to deal with it.

Technique of the Operation.

Though following in the main the methods of Poynton and Reynolds, there are a few small modifications which I should like to suggest. The operation is done, of course, without moving the patient from his bed, the local anæsthetic used being 1 per cent. of novocaine in a 1 in 15,000 watery solution of adrenalin; this should be freshly prepared. A fine-bored needle is used, to minimise the danger of infecting the chest wall from within through puncture of the pleura. I prefer to enter the trocar near the posterior axillary line. The ribs are wide enough apart here to admit of the passage of a fair-sized tube, while the drainage is not so likely to become obstructed by the diaphragm as it would be if the puncture were to be made in the mid-axillary line or further forward still. For the purpose of drainage a Dowse's self-retaining catheter is chosen which is slightly larger in section than the cannula through which it is to be introduced (Fig. 2). These measurements are tested by a catheter scale so as to avoid any visual fallacy. The object of having the outside measurement of the catheter larger than that of the cannula is to ensure that there shall be no leakage of pus between the tube and the walls of the wound after the cannula has been removed. There is, of necessity, some soiling of the wound track during withdrawal of the cannula. To mitigate this, the self-retaining catheter is soaked beforehand in a 1 in 1000 aqueous solution of acriflavine, which is potent in suspending freshly initiated sepsis. After the trocar and cannula have entered the pleural cavity and before the trocar is withdrawn, a pad of cotton-wool soaked in methylated spirit is wrapped round the cannula where it is in contact with the skin, so as to prevent a surface wound infection from overflowing pus. The trocar is now withdrawn, and a finger is immediately placed over the open end of the cannula to prevent any outflow of pus. The self-retaining catheter is now quickly inserted on an introducer, and first the cannula and then the introducer are withdrawn, and as speedily as possible the catheter is connected with the suction apparatus which has already been set going. This, indeed, is almost exactly the technique used to effect suprapubic drainage of a paralysed or infected bladder, and is, I think, much superior to the plan of leaving a rigid cannula in the chest wall through which the drainage-tube is passed. The kind of self-retaining catheter selected is one in which the expanded end is in unquestionable continuity with the trunk of the catheter and is not formed from a separate piece of rubber subsequently vulcanised to the main body, for such an end might conceivably become detached and lost within the patient. Therefore a Dowse's self-retaining catheter is used; in this the continuity of the tip and body of the catheter is unbroken, and no danger of detachment of the expanded end can arise.

In view of the success which has been attained by air-tight suction drainage of empyemata and infected urinary bladders it may be well to test the method in the treatment of other acutely infected cavities—for example, in septic arthritis of the knee-joint. That, however, is a mere suggestion and is not germaine to the present article, the aim of which has been to call renewed attention to Poynton and Reynolds's suction treatment of pleural sepsis, and to add to their advice some small additional details of technique which may be of use to those who will undertake the operation.

SOME SECONDARY MENTAL STATES

AND THEIR SIGNIFICANCE.

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THE conditions best described as "secondary mental states" are fairly common and of considerable interest. A few years ago no attempt was made to distinguish between their variations—hence the prevalence of such vague terms as "trance" and "swoon"—and the general public had a deeply rooted tendency to regard them as associated in some way with the charms and spells of witchcraft and magic. Now the pendulum of fashion has swung far in the opposite direction; everything mysterious is being put into its place according to the principles of a strict scientific determinism, and all such substates of consciousness, when they come within the province of the general physician, are labelled epileptic or migrainous, choreic or post-encephalitic, hysterical or psychasthenic according to the associated signs and symptoms and the individual predilections of the physician. Some clinicians, again, are content simply to regard these secondary mental states as toxic, or vascular, or endocrine in origin; others look upon them as the inexplicable concomitants of a potential psychosis. Nevertheless, the vast majority of them remain under the category of "functional disturbances of unknown origin," and the position is far from satisfactory.

It is essential at the outset clearly to define the conditions. They are characterised by some variation from the normal state of consciousness in which consciousness, as one usually understands that term, is retained, and in which evidence of gross mental derangement is absent. This definition therefore excludes all conditions in which consciousness is lost entirely, such as normal sleep, pathological coma, and syncope, and also those states of complete disorientation and inapperception of reality which characterise the psychoses.

Symptoms Objective and Subjective.

Observed objectively, the conditions under discussion are characterised in the slightest cases by a transient failure of attention, an apparent preoccupation, a fixed staring expression, and some immobility in the general attitude. Upon closer observation some dilatation of the pupil may be noted, together with a change in colour and some variation in the respiratory rate. Often the objective evidence of the condition is limited to a few of these signs, but in severer cases more remarkable changes can be recorded; the patient's behaviour becomes quite obviously odd, and he may show signs of perturbation and distress. The eyes may be rolled upwards, some word or expression may be muttered half audibly, the hands may be clasped in a curious wringing movement, while the respiration assumes a peculiar sighing character. In a few yet rarer instances the individual conducts himself in an entirely strange and inappropriate manner; his character appears to be altogether altered, and his affective tone and reactions to have been completely changed from those of his normal conscious state.

After a variable time he becomes himself again, and may then display a complete amnesia for the period of the change. Between those cases in which only the slightest change is observable and these extreme examples of dual personality there is a gradation of cases of all shades of intensity, demonstrating that the essential change is the same in all and that the varying symptomatology merely indicates the degree to which the process extends.

Subjectively, the symptoms are of even greater interest. Almost every apparently normal individual can recall curious phases of day-dreaming in which the thoughts revert to a more primitive phase than ideation, and in which adaptation to the conditions of external reality is less complete than at normal times. One may be expressing one's thoughts quite adequately in conversation when suddenly and without any apparent cause one loses the thread of one's argument, hesitates for the appropriate word, and is compelled to bring one's sentence to a premature conclusion; in these circumstances one usually experiences an unpleasant feeling of confusion and incompleteness. Passing from the relatively normal to the more definitely abnormal the subject describes a curious sense of unreality, a sensation as though the present situation were somehow the repetition of a similar situation in the past in which he is compelled to enact a painfully passive, automatic rôle; he may feel as though a pause had occurred momentarily in the eternal march of time, or in the rhythmic pulse of the universe, as he may fancifully express it. Objects appear to him abnormally large or abnormally small, as though viewed "through the wrong end of a telescope." A number of curious sensations, visual and auditory, visceral and cutaneous, may sometimes be elicited, and not infrequently a sense of panic, as of some awful imminence, is experienced. The whole period does not usually exceed a few minutes, and frequently its duration is measurable in seconds. In a few severe cases, however, the condition persists for several hours, but such cases are quite exceptional, and as a rule the previous tempo of life is quickly resumed, and all goes on as before. At times no subjective sensations can be elicited, but the patient may appear somewhat confused on being questioned.

Current Medical Opinions.

All these symptoms and signs are most carefully sorted out, labelled, and described under the symptomatology of a number of syndromes. In my opinion they simply indicate a substate of consciousness, and should not thus be sorted, classified, and arranged so as to form so many separate clinical pictures. They ought to be considered as a group, closely interrelated and comprising in its totality a quite definite clinical entity—in fact, a complete syndrome in its integral whole. In the text-book classifications and symptomatologies essentially the same condition—namely, some manifestation of the secondary mental state—masquerades under many names and in many guises: as the aura to grand mal, as an attack of petit mal, as an epileptic equivalent, as a post-epileptic automatism; as a visual fortification phenomenon indicative of migraine; as some form of oculo-gyric or hyperpnœic crisis suggesting encephalitis; as the cerebral manifestation of disseminated sclerosis; as the subjective symptom of vasomotor instability or of a deranged blood pressure; as one of the gamut of functional disorders ascribed to chronic toxæmia, to anaphylaxis, or to an endocrinous dyscrasia, according to the prevailing fashion; as the disturbance in movement, sensation, and memory of an hysteric; as the depersonalisation, doubts, and tics of a psychasthenic; as the light-headedness and confusion of a mild toxic psychosis; as the introspection of a neurasthenic suffering from anxiety; as the introverted phantasy of an early dementia præcox. In each case certain outstanding phenomena are extracted from the fundamental psychic state responsible for their existence, and then these phenomena, divorced, as it were, from their context and having in reality no significance per se at all, are claimed individually as important symptoms pathognomonic of many widely differing syndromes.

Failure of Cohesion in Consciousness.

Now it seems apparent that in each one of these functional disturbances for the production of which no adequate organic cause can be discovered in the vast majority of cases the essential element is fundamentally the same. True, it is interpreted rather differently by the patient according to his individual powers of observation, apperception, and self-expression; it is also tinged in each case by the local colour of any other physical symptom with which it may be associated, as, for example, headache, vomiting, or palpitation, but allowing for all these shades of variation the symptomatology really shows a remarkable degree of uniformity. My contention is that these conditions are all simply manifestations of some change in the functioning of those mental processes which combine to produce the totality of the phenomena of consciousness; they have one common and fundamentally essential character, and this is some failure of cohesion in that integration of psychophysical processes upon which the normal state of consciousness depends. In a number of cases, as in Jacksonian epilepsy and in rheumatic and lethargic encephalitis, a demonstrable pathological lesion is present, and we are justified in assuming that it bears some relationship to the symptom under discussion. The fact, however, that the same change in consciousness is found in a case of organic cerebral disease, in a case of organic non-cerebral disease, in a case of purely psychogenic disorder, and in a normal individual under very varying circumstances, proves that the relationship between the pathological lesion and the change in consciousness is entirely non-specific. In epilepsy the fallacy of regarding the symptomatology as due to some specific physical cause becomes particularly apparent; it cannot be explained in terms of structural changes, nor can subtle variations in consciousness usefully be interpreted by the light of cerebro-topography. Hence the confusion of thought regarding the pathology of such conditions as epilepsy and migraine. This consideration also offers a reason why clinical cases of these diseases so seldom conform to the classical types described in text-books. The differential diagnosis between true and false epilepsy is finally reduced to absurdity by that most assuredly psychogenic of all symptoms, involuntary micturition, the signal hall-mark of fear, clinching the diagnosis of an organic case. The whole process becomes intelligible when one adopts a psychological conception of the disorder, and realises that the primary condition in all these modifications in consciousness is some degree of dissociation, and that the actual line of the cleavage is predetermined by purely psychological factors, while any disturbance in the physiological working of the organism as a whole is able to increase this potential crack into a definite splitting of consciousness. It is not even essential that there should always be some physical, or rather physiological, element in the case at all; not infrequently the psychical factor alone is sufficiently powerful not merely to predetermine the line of cleavage but actually to produce the complete split. Usually, however, the actual dissociation does not occur until some physical disturbance plays a secondary part in its production. This disturbance may be of a gross mechanical nature, as in some definite pathological lesion, or it may act simply by disorganising function, as in a metabolic or toxic disorder or an endocrine or circulatory change. A typical secondary mental state may be induced experimentally in predisposed subjects by the purely physical measure of compressing the cervical vessels; on the other hand, a mild but prolonged form of such a state is regularly induced by purely psychical methods in the treatment of suggestible patients under light hypnosis.

It is difficult to assess the part played by physical and psychical factors respectively in the production of

any given case of epilepsy. Those cases of grand mal in which genuine unconsciousness can definitely be established do not come within our definition of a secondary mental state, and remarks upon epileptoid phenomena of other types should not be applied to them. It does not necessarily follow that these remarks are altogether inapplicable, but for the moment this question is not raised. It is, however, recognised that unconsciousness as it occurs in grand mal may be quite independent of any gross physical derangement; in fact, it will admit of a purely psychical explanation.

The Conception of Dissociation.

Returning to those cases with which we are primarily concerned, it becomes evident that the phenomenon of dissociation in consciousness, considered as a psychological conception, becomes the crucial point in the whole subject. Propounded originally by Pierre Janet, the hypothesis was employed to explain the phenomena of somnambulism, hypnosis, dual personality, and all the paralyses, anæsthesias, and amnesias of hysterical patients. The conception of dissociation, as evidenced in these cases, was that of the process upon the molar scale, but soon it was found that its extension to the molecular scale provided a very helpful conception of psychasthenia, with its dominant subjective symptoms of doubt and depersonalisation. The symptoms of hysteria and psychasthenia were thus conceived by Janet to be manifestations of some disintegration in the totality of consciousness. Since normal mental processes depend upon the functional unity of the whole psychological apparatus, any such splitting or dissociation would obviously be incompatible with mental health; but whereas the analogy of dissociation furnishes a static conception of such processes, a more fundamental appreciation of the condition can only be reached by the adoption of the dynamic conceptions of Freud and the psychoanalysts, considered in conjunction with some hypothesis assuming a dissociative diathesis dependent upon some congenital lowering of psychological tension. The extension of the conception of dissociation so as to regard it as the fundamental condition responsible for all those phenomena subsumed under our definition and description of the "secondary mental state" is the thesis of this paper.

The practical application of these considerations is not that physical measures should altogether be discarded from the therapeutics of consciousness. It is, however, urged that when pharmacological and physiotherapeutic resources have been exhausted, it is at least worth considering whether investigation and treatment might not advantageously be directed along psychotherapeutic lines, even when the case can be classified in a non-psychogenic category.

Clinical and Laboratory Notes.

A NOTE ON THIRTY CASES OF CARCINOMA OF THE RECTUM TREATED BY GAMMA RADIATION.

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BEFORE the development, by Neuman and Coryn of Brussels, of the open method for the insertion of radium in rectal carcinoma, first carried out in this country, we believe, by C. Gordon-Watson, the radium treatment of rectal carcinoma was generally held to be of little if any value. The unsatisfactory results obtained were due to difficulty of access, impossibility of uniform irradiation, inadequate control of lymphatic dissemination by suitable methods of barrage, the relatively slight difference between the radio-sensibility of the normal rectal epithelium and that of the neoplasm, and the diminished sensibility of the growth due to septic changes. With these conclusions we agree, but hope that a short note upon 30 cases of inoperable carcinoma of the rectum treated at King's College Hospital from 1922 to 1927 may not be without interest, although in all cases the radium was inserted into the lumen of the bowel. All the cases were judged to be hopelessly inoperable, and radium treatment was adopted merely to render the patient's surviving space of life a trifle more tolerable. In every case a preliminary colostomy was performed.

The quantity of radium salt ($RaSO_4$) used varied from 150 to 50 mg. and it was enclosed in torpedo-shaped platinum iridium containers 0·5 mm. thick. These were enclosed in another platinum iridium case, also 0·5 mm. thick. Each tube contained approximately 50 mg. of radium sulphate, and one, two, or three were used according to the dosage selected. The screened radium tube or tubes were enclosed in a soft rubber tube before insertion into the lumen of the bowel. It is clear from the filtration that the rectal neoplasms were subjected only to gamma radiation. The duration of application varied from 12 to 30 hours.

The number of cases treated by the different quantities of radium were as shown in Table I.

TABLE I.

Cases.	Mg.	Hours.	Cases.	Mg.	Hours.
1	150	12	17	100	18
3	150	18	7	50	24
1	150	20	1	50	30

In the earlier cases, five in number, 150 mg. were used for 12, 18, 18, 18, and 20 hours respectively. In the first three reaction was severe, with pain, rise of temperature, and sloughing of the growth: the fourth, though showing but slight constitutional reaction at the time, died of secondary hæmorrhage in two weeks. The fifth case, where the radium was left in situ for 20 hours, showed but moderate reaction, and there was no appreciable ultimate effect on the neoplasm itself. The patient in whom 150 mg. were inserted for 12 hours, while exhibiting very marked radio-necrosis, subsequently developed definite fibrosis, but death ensued 12 months later with metastases in the liver and ascites. In all five cases the growth was situated at the lower end of the rectum.

TABLE II.

Amount of $RaSO_4$.	Duration of dosage.	Reaction.	Result.
100 mg.	18 hours.	Moderate.	Growth smaller. General improvement. Survived 18 months.
100 ,,	18 ,,	Very slight.	Marked shrinkage of growth. Died three years later with metastases in liver and ascites.
100 ,,	18 ,,	Very severe, sloughing and hæmorrhage.	Growth much smaller, excised six months later. Patient survived three years and died of bronchitis.

Seventeen patients were treated by the insertion of 100 mg. of radium sulphate for 18 hours. In nine of these the growth was at the rectosigmoid junction, and in only one of the nine was the smallest improvement noted. Here there was shrinkage and fibrosis of the growth and improvement of the general condition, but no prolongation of life. In the remaining eight

cases the growth was at the lower end of the rectum. Five of them showed improvement; in two there was slight fibrosis of the growth, but the general condition was improved. In the remaining three local improvement was definite and the general condition much improved (Table II).

In seven cases 50 mg. of radium salt were inserted for 24 hours. Three of these showed improvement, and one in which only a moderate reaction had occurred showed such marked retrogression that the growth was excised three months after irradiation. The patient survived three years and eventually died of heart failure. In two other cases the reaction was moderate, the growth diminished in size, and the general condition improved. The patients survived for 15 and 18 months respectively.

One case of carcinoma of the lower end of the rectum was treated with 50 mg. for 30 hours. A severe reaction, with hæmorrhage and sloughing, resulted; the growth, after showing an initial slight fibrosis, extended rapidly, and the patient died in 10 months.

All cases were histologically verified, the neoplasm being columnar-cell carcinoma. An interesting feature of this set of cases is the variation in the degree of reaction for the same dosages. In some cases definite radio-necrosis resulted and in others the reaction was not appreciable. The supply of radium available at the hospital is being redistributed in smaller containers, and it is hoped in the future to treat such cases by combined surgery and radiation for prolonged periods. Nevertheless, in view of the foregoing cases, it appears to us that when operative measures for the insertion of radium by the open method are inapplicable, the insertion of radium into the lumen of the gut may make the patient's condition more tolerable and under certain circumstances render a previously inoperable case operable. Our best results were obtained from the insertion of 100 mg. for 18 hours and of 50 mg. for 24 hours.

STRANGULATION OF A SLIDING HERNIA.

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SURGEON TO THE ROYAL EAST SUSSEX HOSPITAL.

ON Nov. 9th, 1928, late at night, I was called to the Royal East Sussex Hospital, Hastings, to see a man aged 80. He had a very large left-sided scrotal hernia, which was fairly tense and quite irreducible. He had vomited twice and was in pain.

He was anæsthetised and the usual incision was made parallel with Poupart's ligaments; the aponeurosis was divided over the inguinal canal and the obstruction at the external ring divided from above. The sac was opened; it contained colon which was connected to the posterior wall of the sac. Blood-vessels to the bowel came up from the posterior wall. It was obvious that this was a sliding hernia, invested by anterior and posterior layers of peritoneum from the left iliac region. The sac was freed entirely from its connexions, and the incision in it was sutured with catgut. The whole sac and its contents were then pushed back into the abdomen through the inguinal canal, which had been thoroughly opened up. As the patient had taken a great dislike to trusses, which he had probably put on over unreduced bowel, an earnest attempt was made at radical cure. His left testicle and cord were removed and the inguinal canal was entirely closed by deep sutures through conjoined tendon and Gimbernat's ligament; a further row united the external oblique aponeurosis. The patient healed well and at present has no hernia. At his advanced age I considered it worth while to sacrifice his testicle in order to close the canal; recurrence may not occur.

It is sometimes stated that these sliding hernias occur only in elderly men, but I saw three cases in men of military age, at the 73rd General Hospital in France, among the great number of ruptures that arrived there for operation.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

THE meeting of this Section on March 8th was devoted to the exhibition and discussion of

CASES OF ENDOCRINE DISEASE.

The chair was taken by DR. J. WALTER CARR, the President.

Acromegaly.

The first case, under the care of DR. C. WORSTER-DROUGHT, was one of Acromegaly. It was demonstrated by DR. I. M. ALLEN. The patient was a man, aged 33, who reported that during the last six years his face and hands had been gradually increasing in size; also he had occasional headache and diplopia. Two years ago he had an injury to the back of his head, and following that there was paralysis of the left fifth, sixth, and seventh cranial nerves. The head and face, especially the soft parts, were now larger than the average. The size of the tongue had also increased, and there was some separation of the lower teeth. Hands and feet were typically acromegalic, and some kyphosis was noted. In regard to the eyes, the only points to be mentioned were a slight horizontal nystagmus to the right and a weakness of the left external rectus. There was slight facial paralysis of the lower neurone type. Marked changes in the sella turcica were revealed by X rays, the pituitary fossa being much enlarged and the bony margins indistinct. Wassermann was negative and the sugar tolerance normal.

Dystrophia Adiposo-genitalis.

DR. HUGH STANNUS showed a boy, aged 13, who was the subject of Dystrophia Adiposo-genitalis. The boy was a full-term child, but he was illegitimate, and the history was that the mother had kept herself tightly laced to hide her condition. At two years of age he was ill-nourished and feeble, and learned to walk late. He was backward in speech, and until a year ago his habits were not good. During the last four years he had been somnolent and was readily fatigued. Periodically he drank large quantities of water and ate a good deal of sugar. Micturition was very frequent, and polyuria marked. The boy's weight was now 115 lb. The genitalia gave the appearance of pseudo-hermaphroditism, the very small penis being hidden by folds of fat, these folds resembling labia. There was a general muscular atonicity, and it was difficult to elicit the knee-jerks. The mental condition was that of a child of 3, and he was difficult to control. There was no ocular paralysis, nor albumin or acetone in the urine. The sella turcica was small and seemed to be surmounted by a cyst.

DR. PARKES WEBER said that as the cyst seemed to be the most important factor in the case it might be possible, as a method of treatment, to break up the cyst and release its contents.

SIR JAMES DUNDAS-GRANT said that such a cyst had been reached by the sphenoid route.

Myxœdema.—Cretinism.

SIR JAMES DUNDAS-GRANT put forward a case of what he presumed was Myxœdema, in which the manifestations were confined to the palate and larynx. The young woman, aged 19, complained of thickness of the voice, a soft stridor on inspiration, and occasional dysphagia, and came before his notice at Brompton Hospital as she was supposed to have tuberculosis of the larynx. There was found to be a general thickening of soft palate and uvula and great infiltration of the epiglottis, which almost concealed the rest of the larynx. Wassermann was negative, and the sputum contained no tubercle bacilli. A portion of the uvula removed showed no tuberculous or rhinoscleromatous tissue. Great improvement followed the giving of small doses of fresh glandular

thyroid substance, and the patient, after an eight-months' absence, returned to work. An increase in the dose cleared the voice, and there was a generally improved condition.

Dr. PARKES WEBER spoke of cases of localised puffiness, sometimes of actual œdema, of the legs in young women of the same age which had been known occasionally to yield to thyroid treatment.

Dr. H. V. MORLOCK showed a girl, aged 18, the subject of Sporadic Cretinism. The birth was a normal one, and the child walked at the age of 16 months, and was able to talk at 2 years. At 3 it was noted to be getting fat and listless, sat for long periods without playing, and forgot to eat. At 5 years of age her height was 35 in. and there had been no increase by the seventh year. At 7 years of age thyroid treatment was begun, and then development started. Thyroid had been continued ever since. Her height was now 5 ft., and her mental development was fair. In reply to the President, Dr. Morlock said she was now taking grs. 2 of dried thyroid extract daily. Her pulse did not rise now beyond 80, and she was not losing weight.

Dr. E. A. COCKAYNE considered that this case should be called one of juvenile myxœdema.

Pituitary Deficiency.

Drs. E. P. POULTON and E. C. WARNER showed a woman, aged 27, with Deficiency of the Anterior Lobe of the Pituitary. The mother was 5 ft. 3 in. in height, the father somewhat taller. The weight of the child at birth was 5 lb., but she was not backward in sitting up or walking. Mentally she was rather slow, but could read, write, and play the piano. Her first menstruation occurred at her twenty-fourth year, and it usually lasted six days. Sometimes she missed a month. Thyroid swelling was first noted at the age of 6 months, and at 3 years it was so extensive as to demand operation because of pressure symptoms. Indeed four operations had been done for this reason, the last seven years ago. Sections of the gland showed a parenchymatous goitre with but little colloid. At present a large swelling in the right lobe of the thyroid displaced the trachea a good deal to the left. Fields of vision were normal, and the pituitary fossa was of the usual size. Some of the epiphyses had not yet joined. The sugar tolerance was normal, and the basal metabolic rate was from 9 to 12 per cent. below the normal. Increasing doses of thyroid and whole pituitary gland had brought about much improvement. The two menstrual periods which occurred since had been normal, she had gained 5 lb. in weight, the thyroid swelling was much less, and the patient had become brighter and happier.

The PRESIDENT raised the question whether, in this case, there was a relationship between the undoubted thyroid disease and a probable diseased condition of the anterior pituitary body.

Dr. G. SLOT, speaking of the methods of giving the remedies, said that at London Hospital Dr. O. Leyton and he tried the effect of giving pituitary extract by the mouth, and by the subcutaneous method in cases which could be controlled by the output of urine. Various oral preparations of the pituitary gland were used, but they had no influence on the urinary output, whereas when the subcutaneous route was employed there was immediate improvement. He did not see any evidence of a pituitary factor in the present case; the thyroid condition probably accounted for all the symptoms.

Dr. PARKES WEBER said he had not heard that pituitary given by the mouth had done any good in cases of pituitary dwarfism.

Dr. COCKAYNE agreed with Dr. Slot that probably in this case the thyroid deficiency accounted for the condition.

Dr. W. S. M. COPEMAN referred to three cases of pituitary deficiency which were studied at Great Ormond-street Children's Hospital by Dr. F. J. Poynton. The latter had concluded that pituitary extract given orally when combined with thyroid extract—though the latter did not seem to be indicated—was a success so long as the administration was being continued.

Dr. WARNER, in reply, referred to the lectures by Harvey Cushing, given three years ago, on endocrine disorders. In certain of the cases there alluded to benefit followed the giving of pituitary, apart from thyroid, and the benefit was sexual as well as general. Following Dr. Gardiner Hill's work, the speaker had tried, in the case of some of these fat people, giving whole pituitary gland alone, also thyroid gland alone; and his general impression was that a larger drop in weight occurred over a given time when the two treatments were combined.

Graves's Disease.

Mr. A. HOBSON (for Mr. Mortimer Woolf) showed a case of Probable Graves's Disease with Thyrotoxicosis. The man, aged 28, first seen four months ago, said his thyroid had been getting large for six weeks. For five weeks his eyes had been very prominent and staring. Both lobes of the thyroid were much enlarged. On admission the pulse-rate was 84 and regular. He did not feel sure that this was Graves's disease. The man was put to bed, and later had a rise of temperature and severe sore-throat. Swabs did not reveal any diphtheria bacilli. Subsequently he lost about 3 lb. weekly in weight, and there was a definite loss of sugar tolerance. The pituitary fossa seemed to be normal. Recently there had occurred a diminution in the thyroid swelling. He was now being treated with glucose and insulin.

Dr. D. E. BEDFORD considered that this patient showed all the usual symptoms of Graves's disease, except that the pulse-rate was 84. Still, a slow pulse did not necessarily mean the case was not Graves's disease; there might be heart-block present. This patient now had auricular fibrillation. If the normal rhythm could be restarted and the general condition improved, he considered that removal of the right lobe was indicated.

Mixed Endocrinopathy.

Dr. I. M. ALLEN showed (for Dr. Worster-Drought) a case of Endocrinopathy of Mixed Origin. The patient was a young woman aged 25, who, when seen, was tired, slow at her work, and of poor appetite. Mental dullness had been increasing for four years. Obesity was first noted about the chest and hips. A year ago she had fits of screaming and noisy hysterical attacks. Menstruation was always irregular. Her frontal and malar bones were prominent; the lower jaw was large and protruded beyond the upper jaw. The hair on the head was profuse and thick, axillary hair was extensive. Pubic hair was normal, but extended to the umbilicus. The cerebro-spinal fluid was normal. Systolic blood pressure was 120, diastolic 75; the sella turcica was not abnormal. Following treatment with extract of whole pituitary and thyroid extract in 3-gr. doses once a day, the weight of the patient was reduced in three weeks from 175 lb. to 164 lb. She became brighter and more sociable, and could carry out small duties satisfactorily. Opinions were asked as to the diagnosis. Conditions other than those of endocrine origin had been carefully considered, such as dementia præcox, post-encephalitic disorder of the pituitary, &c., but no evidence existed to support any other diagnosis. It was regarded as a thyro-pituitary case.

Three Cases of Dyspituitarism.

Dr. WORSTER-DROUGHT and Dr. C. ARCHER exhibited: (1) Dyspituitarism of Mixed Type; (2) Dyspituitarism of Fröhlich Type with Extreme Genital Dystrophy; (3) Dyspituitarism of Mixed Type.

The first of the patients was a boy, aged 15, who was brought to hospital because of his unusual size for his age, his obesity, difficulty in walking, attacks of vomiting, and his mental backwardness. He did not begin to walk until 3 years of age, then he grew rapidly and became obese. He had a large appetite and was very fond of sweets. His height was 6 ft. 1 in., weight (stripped) 19 st. 8 lb. His temperature was always subnormal. The blood pressure was 125

systolic, 75 diastolic. The sella turcica was somewhat small, the frontal sinuses unusually large.

The second patient was a boy of 9, the youngest in a family of six, the other five being normal and in good health. This sixth was a full-term child, and his size seemed normal until 2½ years of age. From that age onwards, obesity had been steadily increasing. The adiposity was general. The temperature was almost always subnormal. The scrotum was completely absent, and no external evidence of testicles could be found. A small penis was present, and was traversed by the urethra. Mentally the boy was somewhat backward, and his habits were dirty. The sella turcica seemed normal; the urine contained neither sugar nor albumin. The blood showed an increase in the large lymphocytes. The blood Wassermann was negative.

The third patient in this series was a girl, aged 10. She was noticed to be getting obese at about 4 years of age, and it had progressed steadily, and during the last four years she had been increasing in stature. She was drowsy, slept a good deal, and said she could go to sleep at any time. The adiposity in her case was mostly round the pelvic and pectoral girdles. The average temperature was subnormal, but the heart was normal. The sella turcica did not appear abnormal.

Obesity.

Dr. TERENCE EAST exhibited a female patient, in the early twenties, the subject of Obesity of Thyroid Origin. The rate of increase in weight had been rapid, she having put on 6 st. in a few months. She had shed her eyebrows, her skin was dry, her feet felt tired, and she was lethargic. There was no change in the thyroid. Her cardiovascular system was normal.

The PRESIDENT considered this to be more like a pituitary case. The patient apparently had very severe headaches while the obesity was developing.

Dr. PARKES WEBER suggested, as an alternative, that it might be premature fibrosis of ovaries.

MEDICAL SOCIETY OF LONDON.

AT a meeting of the Society held on March 11th, Dr. WALTER CARR, the President, in the chair, a discussion on the

CHRONIC DYSPEPSIAS OF CHILDREN OVER THE AGE OF INFANCY

was opened by Dr. REGINALD MILLER. His first intention was, he said, to compare the chronic dyspepsias of children with similar conditions in adults. There was one striking difference between them—namely, the much less important part which was played in the children by the stomach. In the chronic dyspepsia of children local abdominal pain was much less important than in grown people. In the former there was little of the regularly recurring pain, having a definite time relation to meals; indeed, it had a closer relation to actions of the bowels. In children the main symptoms of the condition were those of a constitutional type: lethargy, lassitude, loss of appetite, a coated tongue, foul breath, &c., and particularly general loss of health and alterations in the child's character and behaviour.

Usually the dyspepsias of childhood were divided into the gastric, the hepatic, the intestinal. The gastric were further divided into organic, reflex, and functional. The practical absence of ulcer and growth in childhood brought the organic causes down to small limits. Even chronic gastritis was a comparative rarity in the young, in spite of the frequent use of a faulty diet. Of the reflex kind there was practically only chronic appendicitis to consider. This was debated before the Children's Section of the Royal Society of Medicine, where the general opinion was expressed that though recurrent appendicitis commonly produced recurrent gastric symptoms, yet very little was known of chronic appendicitis producing chronic gastric dyspepsia. He thought that in a general way that verdict would be accepted. Regarding functional gastric dyspepsia in children, much less work had been done in investigating the gastric function in children than in adults, although Dr. W. S. Copeman had recently tried to establish a normal secretory curve, while another worker had come to the conclusion that hyperchlorhydria was a common cause of dyspepsia in children. Symptoms of atonic dyspepsia, of mild grade, were common in debilitated and constipated children, and cases of considerable severity, with a splash and a dropped stomach, were found in weakly children of considerable age. Also there was a very rare type of case, with a dilated and hypertrophied stomach, almost warranting the name gastromegaly. The causation of this condition he did not understand. He did not feel clear about the occurrence of hepatic dyspepsia, though it was true that in chronic indigestion there was often evidence of hepatic derangement. These episodes, however, were probably due to doses of intestinal toxæmia, with secondary disturbance of the liver.

With regard to acidosis and the part it played in association with digestive disorders, it had long been recognised that acid intoxication was associated with periodic gastric symptoms, such as cyclical vomiting, but the latter was not included in the present discussion strictly. But Dr. H. C. Cameron claimed that many cases with chronic symptoms, mostly nervous but also abdominal, were due to acidosis, though the acidosis on which Dr. Cameron built his theory was not of the type associated with persistent ketonuria; it was a latent acidosis, distinguished by a lowering of the alkalinity of the blood. Dr. A. A. Osman had recently said that 30 per cent. of hospital children suffered from cyclical vomiting. Excluding the consideration of recurrent attacks of cyclical vomiting, there were a large group of cases exhibiting the triad of symptoms: (1) constitutional ill-health, apparently due to chronic toxæmia; (2) nervous disorders, probably functional; (3) persistent dyspeptic abdominal symptoms, such as colic, diarrhœa, mucus in the stools, and so forth. He believed Dr. Cameron considered the constitutional factor to be due to latent acidosis, the digestive symptoms being secondary. It was presupposed that the child started with an emotional and neurotic condition. The speaker found it difficult to accept those views, as he did not see how slight latent acidosis could produce persistent and chronic symptoms; moreover, small doses of an alkali would do away with such acidosis. Some children having acidosis were yet well and free from nervous symptoms. His own view was that there was first intestinal indigestion, then toxæmia arising from that; then constitutional ill-health and nervous symptoms arising as a result of the intestinal toxæmia. These views differed in their assignment of the primary source of the trouble, and therefore in the treatment adopted to deal with it.

In intestinal indigestion the symptoms were not always those suggestive at first of a disorder of digestion; in many cases the general constitutional and nervous symptoms overshadowed the abdominal signs and symptoms; these children had an unhealthy looking, muddy complexion, puffy face, dark rings round the eyes, a coated tongue, foul breath, a strong odour from the body, loss of appetite, and were easily fatigued. They might have nocturnal fever, and sweating at night was common; the nerve manifestations took the form of a profound psychological upset. This kind of child was recognised by several signs. There was an enlargement of the abdomen, which might be persistent or intermittent. Flatulence and hiccough were common. There was the occasional or persistent occurrence of abnormal stools, and when the stools were most markedly abnormal it could be seen that there was a deterioration in the child's condition. Another proof of gross indigestion was furnished on microscopical and chemical examination of the fæces, and there was indican in the urine.

Starch indigestion was not a common fault in older children; it could be suspected when the

stools were loose and acid and were pitted from the evolution of gas. Signs of secondary colitis might be present. These cases were due to over-feeding with starch. Paraffin indigestion had to be reckoned with; it was due to overdosing with medicinal paraffin. The oil surrounding the particles of food favoured decomposition rather than digestion. Likewise there was a "nut indigestion," in which vegetable cells surrounded by the nut oil were found; he thought some of the new bran preparations produced a similar condition. Pale fatty stools might be simply the result of the undue intake of nut food. With regard to threadworms, apart from the local irritation he knew of no difference in the toxic constipation with threadworms and that without them.

Dr. Miller concluded by discussing the causative factors in intestinal toxæmia. Why was one constipated child in good health, while another similarly constipated was obviously ill from toxæmia? In many cases in children alimentary toxæmia was not associated with intestinal stasis, and very little was seen of cæcal stasis and distension in children. From the examination of 2000 cases he was unable to correlate toxæmia with any quantitative changes in the intestinal flora. The worst cases seemed to be those in which the streptococcal count was high and the coli count low. But who could tell whether those changes were the cause or the result of the intestinal disorder? He considered that colitis was set up not so much by abnormal bacterial poisons as by chemical factors, among them the prolonged use of unsuitable aperients, of irritating foods, and perhaps the passage and pressure of hard fæcal masses. On the colitis much of the toxæmia, he considered, depended. If this were so, it gave an indication of the lines to pursue—giving a smooth residue diet, non-irritating aperients, and colon lavage.

Gastric and Intestinal Symptoms Contrasted.

Dr. W. G. WYLLIE said one of the most striking features of these digestive disorders in young children was the close interplay between the gastro-intestinal and nervous systems. In the dyspepsias mainly intestinal in origin the nervous symptoms so far outclassed those related to the bowel, that it was the nervous manifestations which chiefly coloured the mother's picture of the child's ailment, though they were secondary to the bowel disorder. In the case of gastric disorders—of which vomiting was the chief symptom—probably the reverse was the case. The liver must have an important rôle in all the dyspepsias, but the testing of hepatic functions had not yet reached a stage to be of much use in recognising the effects of intestinal and metabolic toxæmias. To this, however, cyclical vomiting was an exception. Another remarkable feature of the cases under discussion was the abundant manufacture of mucus in the gastro-intestinal tract, in constipated cases as well as those with a tendency to diarrhœa. He divided the chronic dyspepsias of childhood into two groups—those mainly concerned with the intestine, and those in which the gastric functions were most obviously affected. In the first group he placed chronic intestinal dyspepsia, mucous disease, cœliac disease, colitis; in the second group he put bilious attacks, cyclical vomiting, and gastric disorders of definitely nervous origin. Some of these were simply clinical entities; there was no strict definition of them scientifically considered. Chronic intestinal dyspepsia he regarded as especially a disorder of the urban child population of the hospital class, and the chief causes seemed to be external; they had hurried and inadequate meals, and there was a constant nervous irritability. Fainting attacks might occur, also somnambulism. Often there were signs of vasomotor disturbance, such as cyanosed and clammy extremities and enuresis. Sometimes tuberculosis was suspected by the parents. Many cases presented an irritative papular rash in the form of lichen urticatus, chiefly on the trunk and lower extremities. Many of these children had morning retching, due to the collection of mucus in the stomach during the night. Chronic intestinal dyspepsia responded readily to treatment—i.e., a proper adjustment of diet on physiological principles, and continued use of mild laxatives and sodium bicarbonate. Mucous cases also required a proper constitution of the diet, and the improvement of the bowel condition by small doses of hydrarg. cum crete, sod. bicarb., and bismuth salicylate.

Most cases of cœliac disease started towards the end of the second year of life, and it was a very chronic condition. The stools were numerous, pale, bulky, and often frothy; in severe cases there might be streaks of blood in them. These children found it very difficult to assimilate fats and carbohydrates, yet there was no evidence of a pancreatic or hepatic deficiency. Dr. Hutchison had determined the urea production in these cases; it was normal. Two views had been advanced as to the cause of this condition: one favouring a bacterial origin, the other suggesting a purely metabolic disorder. Dr. Wyllie considered that in every case of cœliac disease it would be well to examine the stools for dysentery bacilli, and to have the agglutination reactions of the blood serum investigated. There were strong reasons for suspecting a bacterial agent in cœliac disease, and family cases suggested that the disease could be transmitted from person to person. The question arose whether it was possible that fat was absorbed in cases of cœliac disease and again excreted without being utilised. Bauer had found the blood-fat raised in cases of cœliac disease, quite apart from its cholesterol content. Still, this idea of it being a disorder of fat metabolism must be accepted with reserve, as methods of estimating blood-fats had not been standardised. His own view was that in this disease there was a defective absorption of fats owing to the action of bacteria, probably of the dysentery group.

Bilious attacks were characterised by frequent vomiting for a day or two, often associated with fever and headache. The subjects of it were often decidedly nervous children, and the onset of the attack was often heralded by apathy, irritability, a distaste for food, &c. Usually, there was an underlying state of chronic intestinal dyspepsia. The periodicity of the attacks led to the view that the vomiting was produced by the action of absorbed toxins on the cerebral centres, rather than by gastric catarrh or disability. There seemed to be a close relationship between bilious attacks, cyclical vomiting, and migraine. In cyclical or recurrent vomiting several theories of causation had been put forward, and these the speaker discussed. Certainly the children in whom it occurred were of a nervous temperament.

With regard to dyspepsias in general, McCarrison had stated that they were probably connected, in their origin or in their continuance, with dietetic deficiency and a lack of balance in the food. Mellanby, working on the subject of diarrhœa and vomiting in children, thought that the diarrhœa and vomiting facilitated the entry into the body of toxic substances which were normally present in the intestine.

Discussion.

Dr. B. E. SCHLESINGER said that the ætiology of these conditions was still imperfectly understood. He favoured the view put forward by Dr. Wyllie as to the cases of cyclical vomiting. The speaker had recently seen two cases, in one of which migraine, cyclical vomiting, and attacks of vaso-vagal character, similar to epileptic attacks, occurred. In that child he was able to banish the fits by dietetic measures, by increasing the carbohydrates and decreasing the fats. The explanation of these cases was thought to lie in a temporary anæmia of certain parts of the brain. As a routine, in these cases, he took a record of the blood pressure, and in a certain number of migrainous cases there was a distinct rise in the blood pressure. He did not think all cases of migraine and cyclical vomiting had hyperpiesia. He wondered whether the cases of "nut dyspepsia" mentioned could not be put in the same class as those of quaker oats and coarse wholemeal bread—i.e., foods causing intestinal irritation in children. In colitis there was

not much quantitative alteration of intestinal bacteria found. The speaker wondered whether the production of mucus was not a defensive mechanism of the body. In dysentery, especially late stages of it, an enormous quantity of mucus was passed. It might be a measure of protection against roughage of the intestine by irritating foods.

Dr. F. G. CHANDLER referred to the varying advice sometimes given concerning the same type of case by different children's disease specialists, and asked as to what constituted good breakfasts and teas for children.

Dr. W. S. COPEMAN suggested that the cause of the conditions being discussed was not any diathesis, but that the ground was prepared in early life by various dietetic and therapeutic measures to which the infant had been subjected. Light might be thrown on the matter by studying the effects of diets in children of other countries where other habits prevailed. On the continent a higher carbohydrate diet was favoured for the infant, 10 per cent. being given in milk mixtures in the hospitals. In the adult state the Frenchman was less liable than the Britisher and the American to hyperchlorhydriac dyspepsias.

The PRESIDENT remembered, when many years ago he saw out-patients, the large number of children whom he diagnosed as suffering from muco-membranous catarrh. Measles, he thought, played a very important part in producing chronic dyspepsia in children. The more important respiratory sequelæ of that disease were well known and recognised, but he thought the gastro-intestinal results of that disease were even more numerous than the respiratory.

Mr. ZACHARY COPE commented on surgical causes of chronic dyspepsia, such as chronic appendicitis. Chronic tuberculous glands in the abdomen, either calcifying or non-calcifying, gave rise to attacks of colicky pain simulating that of dyspepsia. X rays would show the calcification, and so help to a diagnosis. If these glands were not diagnosed early and dealt with acute intestinal obstruction might result. Also, chronic intussusception might go on for weeks and be mistaken for chronic dyspepsia of doubtful origin.

Replies.

Dr. MILLER said that those who declared cœliac disease to be an infection should have a clear conception of what the infection was doing. What seemed to point to malabsorption of fat was the fact that long after the symptoms disappeared the fat absorption still remained defective.

Dr. WYLLIE thought the most hopeful research was along chemical lines. The child's breakfast should be somewhat varied from day to day; suitable ingredients were rusks, force, grape-nuts, shredded wheat, a lightly boiled egg, bread-and-butter, bacon, and jelly. More important still was a dose of orange juice before breakfast, both for its relaxing effect and for its contained vitamins.

A HOSPITAL AMALGAMATION.—It has been decided to amalgamate the Devon and Cornwall Ear and Throat Hospital with the South Devon and East Cornwall Hospital at Plymouth. The arrangement is, however, unlikely to become immediately effective, owing to the need for enlarging the accommodation of the larger institution.

DONATIONS AND BEQUESTS.—Mrs. Alice Pigott, of Hove, left £1000 to the Cancer Hospital, Fulham; £300 each to the Royal Hospital for Incurables, Putney, the National Hospital for the Paralysed and Epileptic, and the Solicitor's Benevolent Association; £200 each to Dr. Barnardo's Home for Cripples, Tunbridge Wells, the Church of England Waifs and Strays Society, the Royal United Kingdom Beneficent Association, Charing Cross Hospital, and the Royal Free Hospital.—The Nizam of Hyderabad has given a donation of £1000 to the Ross Institute and Hospital for Tropical Diseases.—Among other bequests the late Mr. J. R. Pope, of Wotton, Gloucester, left £5000 to the Gloucester Royal Infirmary and Eye Institution, and £1000 each to the Bristol Royal Infirmary and the Free Hospital for Children of the Poor at Kingsholm.

Reviews and Notices of Books.

THE PROBLEMS OF APPLIED ENTOMOLOGY.

By ROBERT A. WARDLE, M.Sc., Professor of Zoology, University of Manitoba. Manchester: University Press. 1929. Pp. 587. 30*s*.

THIS work does not aim at being complete in itself but is intended to supplement the volume on Principles of Insect Control, published by Wardle and Buckle in 1923. The first part of the book consists of a review of general problems, and is in fact a consideration of the physiology, œcology, pathology, and toxicology of insects in their relation to insect control. The problems of agricultural entomology are so abundant that it is only natural that they should usurp by far the greater part of the space available. But this makes the book no less stimulating for the medical entomologist, and it is certainly of value to find, set out side by side, such theories as Uvarov's "Phase Theory" of locust migration and the theory outlined by Roubaud and Wesenburg-Lund, of zoöphilous races of anophelines, each involving the idea of biological races characterised by their behaviour. The practical value of the study of insect physiology comes out very clearly in this book, albeit that so far it is mainly such fields as temperature and humidity effects and tropistic reactions which have been exploited. In connexion with "oviposition stimuli," reference might well have been made to the experimental studies of P. A. Buxton and G. H Hopkins on oviposition by *Aëdes* (*Stegomyia*), for these studies point very clearly the moral of the need for adequate controls and for the statistical examination of results.

The second part of the work represents an attempt to compress into a space admittedly too small a summary of the main entomological problems which exist in all parts of the world at the present day. The arrangement is geographical and the result is a most valuable piece of work. The brief summaries of medical entomological problems are adequate for the most part, though rather less than justice has been done to the work of S. Adler and O. Theodor and others on oriental sore. The mode of transmission of louse-borne relapsing fever was originally demonstrated by C. Nicolle and others in 1913 and not as here stated by Shapsheveka in 1924. Part III. (40 pages of small print) consists of a classified bibliography which purports to be complete for the period under review. The book does not set out to be critical and it contains too many facts to make easy reading, but as a work of reference it will be an essential possession for the agricultural entomologist, and the medical entomologist will find it of considerable value.

OLD MASTERPIECES IN SURGERY.

Being a Collection of Thoughts and Observations engendered by a Perusal of some of the Works of our Forebears in Surgery. By ALFRED BROWN, M.D. Omaha, Nebraska (privately printed). 1928. Pp. 264.

FORTY-EIGHT papers are here reprinted from that corner of *Surgery, Gynecology, and Obstetrics* known as the "Surgeons' Library"; they represent an output of one a month over four years. The author modestly disclaims in his preface any pretentions to being a medical historian, but his studies on the incunabula of surgery are on the way to making history; he does not profess to deal exhaustively with his subject, and he has written short essays, mainly round the title pages of the works of our forefathers, from Soranus of Ephesus and Oribasius of Sardis, through those of mediæval times, and ending with Cheselden. To try to recreate the personality of surgeons of past generations from a study of their works is, in most instances, the only way. All down the ages surgeons seem to have been as conscious of

each other's deficiencies, to quote the dictum of the late Lord Justice Bowen, as any bench of Her Majesty's judges—vide Ambroise Paré and "mon petit maître" Gourmalen.

How great a part war has played in the evolution of the surgeon is emphasised by the author. As means of killing advanced it became necessary for the surgeon to adapt his methods of treatment to new kinds of wounds. Nothing is said here about the hand-to-hand scuffles of the men of the Stone Age, but we are introduced to the feudal cavalry, heavily armoured both man and horse, suffering mainly from head injuries and fractures due to the lance, mace, and battle-axe; we are told of the arrow wounds resulting from the short bow of Norman times, and we recognise the much more severe wounds resulting from the Edwardian institution of the long bow, where the bowstring was drawn to the lobe of the ear, thus making it a far more potent engine of destruction and, incidentally, making the English archer by far the finest foot soldier of the times. Later on came the crossbow with quarrel, and gunpowder with the harquebusse, musket, and rifle, and finally high explosive. By an oversight, the date of the Black Death, in the essay on John of Arderne, is post-dated 20 years; it should be 1348–49. Praise is due to the author for the skill with which he has marshalled his material; the illustrations of title pages of incunabula and of old surgical instruments are beautifully reproduced and the essays, while certainly not exhaustive, are well written in a pleasant style.

REPORT ON MUSSEL PURIFICATION.

By R. W. DODGSON, M.D., M.R.C.P., M.R.C.S., Director of the Ministry of Agriculture and Fisheries Research Station, Conway. London: H.M. Stationery Office. 1928. Pp. 498. 21s.

IN addition to a description of a new method of purification for mussels on a large scale, the report contains a valuable discussion on shell-fish pollution, poisoning from mussels, bacteriological methods of examination, and much information about particular mussel beds. The discussion upon the sources of pollution of mussels and other shell-fish and the evidence as to disease conveyance will be of great interest to those concerned with public health problems. Much obscurity surrounds the question of mussel poisoning, of which an excellent and detailed account is given, valuable material not readily accessible being collected from varied sources. The author divides mussel poisoning cases into three groups. There is, first, the erythematous type which he describes as "musselling," associated with an erythematous rash, often with urticaria and other symptoms, and now usually considered to be of anaphylactic type. The second is the paralytic type, and includes very fatal, but fortunately rare outbreaks of puzzling ætiology. Some eight or ten such outbreaks are described. They used to be ascribed to *mytilotoxine*; the author agrees that this theory is now discredited or at least not proven, but he throws no light on their causation. Dr. Dodgson is somewhat unfortunate in that his volume was written before the only modern report on such an outbreak was issued. We refer to that dealing with the extensive outbreak on the Pacific Coast in the neighbourhood of San Francisco where 102 cases and six deaths occurred. The outbreak was described by Meyer, Sommer, and Schoenholz,[1] and adds much new information as to the cause of the poisoning. The third type is bacterial food poisoning, which rarely follows the consumption of mussels, but cannot be excluded.

A long series of experimental investigations culminating in the elaboration of a simple method of purification of mussels is described by Dr. Dodgson. In its essentials this consists of allowing the shell-fish to purify themselves by short sojourns (two baths each of one night) in tanks of sterile sea-water with a third treatment with chlorinated water to kill any bacteria on the shells. The mussels are then packed in sterilised bags ready for the market. The utility of this method is demonstrated by numerous bacteriological investigations, nearly complete sterility being attained. The economic side of the process is discussed and it is shown to be a practicable procedure from the economic aspect. Very many other problems are dealt with in the report, such as the life-history of the mussel and its habits, bacteriological examination, bacteriological standards, and the like. The general bacteriologist will find much to interest him in these sections of the report. Many points discussed are highly technical; for example, the author finds that lactose-containing culture media are unreliable for primary shell-fish examinations, the reason being that glucose is produced from mollusc glycogen by enzyme action. The vexed question of bacterial standards for shell-fish is discussed in detail; such standards are regarded merely as indications that contamination is liable to occur.

The whole report is a useful piece of work reflecting great credit on the author.

[1] Journal of Preventive Medicine, 1928, ii., 365.

TRIAL OF J. B. RUSH.

Notable British Trials Series. Edited by W. TEIGNMOUTH SHORE. London and Edinburgh: William Hodge and Sons. 1929. Pp. 272. 10s. 6d.

RUSH, the Norwich murderer, killed his landlord, Isaac Jermy (recorder of Norwich) and his landlord's son one night in 1849. He owed Jermy a large sum, had no money, and had soon to pay off a mortgage on his farm. Having forged documents which might help him financially if Jermy's death occurred forthwith, he went up to Stanfield Hall partially disguised and shot the inmates. With four bullets he murdered the father and son and wounded Mrs. Jermy and a servant. Cunning enough to lay a false trail of suspicion, he was too stupid to see that the attempt to cover his tracks merely made his conviction more sure. This adequately edited volume has less medico-legal interest than many of the series to which it belongs. Rush, defending himself unaided and haranguing the jury vigorously, makes a notable figure. After his wife's death he had engaged for his children a governess whom he seduced under promise of marriage. The poor woman, truculently cross-examined by the accused, gave evidence of his movements and conduct which went far to establish his guilt. Had he kept his promise and married her, that evidence could not have been given and he might have saved his neck.

THE MACHINE OF LIFE.

By ETHEL BROWNING, M.D. London: William Heinemann (Medical Books), Ltd. 1928. Pp. viii. +124. 5s.

THIS latest addition to the increasing number of books presenting physiology and anatomy from the popular point of view has much to recommend it. The author has not only covered the traditional grounds of describing the anatomy and physiology of the various systems, but she has included an excellent chapter on reproduction and one on the mind as distinct from the nervous system. On the whole the subject matter is presented clearly and accurately but in places revision is necessary. The arrangement of headings throughout could be improved. The last half a dozen lines on the ear (p. 41) do not make sense, while the heart is described under the heading of "The Lymphatic System." The description of the heart as "placed obliquely," and later on as "divided horizontally" and "divided vertically" makes very confusing reading (pp. 63, 64). The book gives the impression of having been put together too hastily, but the author certainly has that ability to describe technical details in simple language which is the essential quality in the production of a book of this kind.

TEXT-BOOK OF PATHOLOGY.

Second edition. By ROBERT MUIR, M.A., M.D., Sc.D., LL.D., F.R.S., Professor of Pathology, University of Glasgow; Pathologist to the Western Infirmary, Glasgow. London: Edward Arnold and Co. 1929. Pp. 872. 35*s*.

THE primary object of this book was to provide for medical students a text-book dealing on the one hand with the scientific aspect of general pathological processes, and on the other with the systemic pathological changes of special importance in relation to clinical medicine and surgery. In the preparation of the second edition Prof. Muir has wisely kept this object in mind and has not altered the general plan of his book. This edition is larger by a hundred pages than the first, and contains about seventy additional illustrations, but this enlargement is the result of the judicious incorporation of new matter and the careful revision and expansion of the text.

When it first appeared Prof. Muir's book was recognised as the most important publication of its kind in this country. Its popularity has continued to grow, for it has the peculiar merit that the more it is consulted the more its excellence becomes apparent. In no other book of its size with which we are acquainted is the lucid presentation of general principles combined with such a wealth of detailed information. The care with which the second edition has been prepared can only be appreciated by a close study of the text; but such an examination will show that almost every page has been passed under review. The result is not only an admirable text-book but a work of reference which should be in every pathologist's library.

PRACTICAL BIOCHEMISTRY FOR STUDENTS.

By E. W. H. CRUICKSHANK, M.D. Aberd., D.Sc. Lond., Ph.D. Camb., M.R.C.P. Lond., Professor of Physiology, Prince of Wales Medical College, Patna. Calcutta: Butterworth and Co., Ltd. 1928. Pp. 275. 12*s*. 6*d*.

THIS work appears to be exceptional in that the author has broken away from the standard of somewhat depressing experiments which usually form the subject matter of text-books of practical biochemistry and chemical physiology. The first few chapters are devoted to a brief description of laboratory equipment, standard solutions, and so forth, together with some general directions to the student. Then follow three chapters which give fairly detailed accounts of proteins, carbohydrates, and fats in turn, details of tests for the substances coming under these headings being given. The digestive processes are next dealt with fully, a short chapter being included on bile. Chapters VIII. and IX. deal with the urine; full accounts of qualitative and quantitative examinations are given, and in many cases alternative methods are described. Chapter X.—a short one on the chemistry of foodstuffs—has been completely omitted from the table of contents, upsetting the numbering of the subsequent chapters in the text. The last 50 pages of Part I. deal adequately with the blood and its chemical analysis. Of special interest is the chapter on the neutrality mechanism of the blood in Part II. This is very well written and goes into some of the more difficult and complicated aspects of the subject. It commences with a detailed description of the colorimetric method for estimation of pH of the blood, followed by a brief but clear account of theoretical considerations. The author, we think, has handled the mathematical aspects of the subject very cleverly indeed, and he has written an account which should be easily understood even by one who finds mathematics difficult. The difficult subject of buffers is also tackled from a modern standpoint. A short series of references to this part of the book is given, and the appendix includes some useful tables.

The volume is small and well arranged, and gives a concise account of the subject matter with refreshing originality.

CLINICAL RADIO-DIAGNOSIS OF THE INTESTINAL CANAL.

By H. CHAOUL. Berlin: Julius Springer. 1928. With 893 illustrations. Pp. 642. M.48.

MANY books have come to us from Germany in the last few years, but this volume is outstanding and is likely to become a classic in the literature of the gastro-intestinal canal. The illustrations show a very high order of radiographic technique and are very well reproduced. The technique of the author differs slightly from that in general use, but seems to be effective both from the radiographic and screening point of view. The manner in which he uses looking-glass observations for screening and radiographing the duodenum is simple and, judging by the radiographic results, efficient.

That such a splendid book should be put up in paper covers and published with uncut pages is a curious example of misplaced economy. We were so impressed, after a brief survey, with the value of the contents, that the rebinding of the volume in a manner more worthy of the enormous labour and high achievement of the author seemed imperative. The publishers have used art paper throughout, and the radiograms have been extremely well reproduced. After rebinding it is now a first-rate volume in every way, the letterpress being clear, not redundant, and well arranged.

MALAY POISONS AND CHARM CURES.

Third edition. By JOHN D. GIMLETTE, M.R.C.S., L.R.C.P. London: J. and A. Churchill. 1929. Pp. 301. 10*s*. 6*d*.

THE first edition of this book was published in 1915 and was quickly sold out of print. It took rank as an authoritative pronouncement on forensic medicine in the local law-courts, and a second edition was produced in 1923. The third edition has been brought up to date, but much research still remains to be done in working out the physiology and toxicology of some of the poisonous plants which abound in Malay. The Borgias and other celebrated poisoners of the past would have revelled in the possession of such a collection of obscure poisons. The book is divided into two parts, the second of which is devoted to the poisons obtained by Malays from fish and other members of the animal kingdom, from jungle plants and other vegetables, and those derived from inorganic sources, such as arsenic, mercury, cyanide of potash, pounded glass, sand, and quicklime. This part of the book is of real scientific value. An appendix gives examples of spells and charms transcribed into Romanised Malay, a classification in natural orders of the poisonous plants, and a list of Kelantan poisons.

The first section of the book forms a treatise on Malay folklore and is extremely interesting. It is entertaining to note that the ideas on magic and witchcraft current in Malay are similar to many which can be found in the folklore of the Occident. Bile is much prized by Malayans as a medicine. Roger of Hoveden, informs us that, in 1191, King Richard I. ordered most of those captured at the siege of Acre to be put to death.

"5000 were slain and disembowelled by the Christians, who found much gold and silver in their entrails, while they preserved their gall for medicine."

Jin and other spirits, according to Malay legends, precede man in creation:—

"The Creator determined to make man, and for that purpose He took some clay from the earth and fashioned it into the figure of a man. Then He took the spirit of life to endow this body with vitality and placed the spirit on the head of the figure. But the spirit was strong, and the body, being only clay, could not hold it and was reft in pieces and scattered in the air. These fragments of the first great Failure are the spirits of earth and of sea and of air. The Creator then formed another clay figure but into this one he wrought some iron, so that when it received the vital spark it withstood the strain and became man."

Veritably these were men of blood and iron.

THE LANCET.

LONDON: SATURDAY, MARCH 16, 1929.

NUTRITION IN THE COALFIELDS.

THE impression produced by the latest official Report [1] on conditions in the coalfields will depend very much upon the mind and temperament of the reader. Those seeking reassurance will read with easy conviction that there is no increase in the epidemic death-rate, the death-rate from tuberculosis, or the infantile death-rate, and will reflect that any serious state of malnutrition must early show itself in an increase in some or all of these. Others may be less easily satisfied and may be led to wonder whether the latent period between malnutrition and the ultimate detriment to life may not be a long—even a very long—one, though the effect may be none the less inevitable. Conditions of malnutrition, either qualitative or quantitative, have to be very severe before they imminently endanger life, particularly where the health services are still in operation. Thus, to take as an extreme case of qualitative malnutrition the 150 cases of hunger-osteomalacia ("adult rickets") studied as out-patients by HUME and NIRENSTEIN [2] in Vienna during the food-shortage of 1920, none was ever known to be lost from the series by death, and as far as any evidence was to be found in the vital statistics that batch of terribly suffering humanity might never have existed.

"Rickets does not kill," it has always been said, and rickets is the only definite disease of qualitative malnutrition which seems likely to be a serious menace in the distressed areas. In this latest Report we are told that it is present in increased degree in certain of the regions investigated. It is not stated how the diagnosis was made, but presumably it was a clinical one based on visible or palpable deformities, and it must be borne in mind that such a diagnosis is bound to overlook many less severe cases in which the calcium balance is actually negative and the disease would be clearly shown by radiographic examination. Though we may say that "rickets does not kill," we should be extremely loth to say that any child which has had rickets will afterwards be exactly the same as if it had not had rickets—apart from the needless suffering and economic waste. The Report states that the welfare centres are dealing with the disease as soon as it appears among those who attend, but it is much to be desired that some special effort should be made to reach all children with a reliable cod-liver oil and all mothers with instruction on the importance of exposing their children to every bit of available sunshine, and so to make good as far as possible, by other than dietetic means, this qualitative deficiency in the food, if such a deficiency must continue. It is not stated whether the children affected are breast-fed babies; it is only said that they are "children in the early years of life"; so it cannot be deduced how much the child's disease may be due to the mother's nutritional failure. But the Report does go on to say that the prevailing diet is "unsuitable for the maintenance of health over any prolonged period, and especially for young children and nursing mothers." The whole account induces a profound misgiving that the supply of vitamin D, even to the adult population, may be insufficient. In view of these latest revelations, greater stress should perhaps be laid upon this particular need than was done in our columns a few weeks ago.[3] The margarine used should be exclusively one to which the vitamins A and D have been added, and fat fish should be particularly commended. Skimmed milk will supply calcium and other salts, and is a great deal better than no milk at all. It is, however, extremely hard to find cheap articles of diet which will supply vitamin D. Adults, besides children, should make use of the sunshine when it comes, and cod-liver oil should be available for mothers as well as children.

When we turn to the question of quantitative insufficiency, the Report expresses doubt also about the caloric value of the diet. Without accurate measurements of food consumed and of the height and weight of the affected population, this must be a difficult matter to decide, and where so many psychological factors exist to promote depression, the outlook of the people cannot be taken as any index of their degree of under-nutrition. It is probably outside the scope of this Report to make recommendations concerning the machinery by which the adequate qualitative and quantitative nutrition of these poor people should be secured and the Commissioners pass on to deal with political considerations where medical comment would not be relevant.

[1] Report on Investigation in the Coalfields of South Wales and Monmouth. London: H.M. Stationery Office. 1929. Pp. 10. 3*d*.
[2] E. M. Hume and E. Nirenstein: THE LANCET, 1921, ii., 849.

CONGENITAL DISLOCATION OF THE HIP.

CONGENITAL dislocation of the hip is relatively rare in this country. LE DAMANY estimates that there are at least 200,000 cases living in France, and in Brittany the proportion of cases to the general population is still higher. In the north of Italy also the lesion is very common; at least 1000 patients are treated annually at Milan and Bologna. We lack statistics as to its prevalence in countries other than those mentioned. In London, which probably draws cases from a population of at least ten millions, probably not more than one hundred new cases are seen annually. We cannot tell why there should be this remarkable contrast in liability to this dislocation between the inhabitants of different European countries, or why the Celtic Breton and the Lombard Italian should share the same unfortunate prominence. The sex incidence of the defect is also unexplained, for no satisfactory theory has been formulated to account for the fact that 85 per cent. of cases are found in female infants.

It is now generally accepted that the deformity is due to a developmental defect of the pelvis, which may give rise to subluxation or even luxation before birth, or may produce deformity only in postnatal life. The nature of this defect and of the progressive secondary changes which occur when the femur remains displaced form the subject of the greater part of Mr. H. A. T. FAIRBANK's Lady Jones lecture delivered recently in the University of Liverpool. Its concluding paragraphs deal with problems of treatment by means of open reduction considered in the light of research into the anatomy of the joint. Mr. FAIRBANK bases his observations on a study not only of museum specimens and radiograms but upon facts noted during exposure of the parts in the course of operations, upon the "pathology of the living," as the

[3] THE LANCET, Jan. 5th, p. 28.

President of the Royal College of Surgeons of England has happily called this method of study of morbid anatomy. As Mr. FAIRBANK points out, the primary fault in all cases appears to be the poor development of the upper margin of the acetabulum, a defect which hinders normal function even after successful reposition of the head of the femur. Only very slowly can the defect be made good, if indeed it can ever be completely corrected. All other changes are of secondary import. That the malformation involves not only the cotyloid ligament, but also the cartilaginous margin and the bone even when dislocation is not yet complete, is clearly shown in two fœtuses described by LOCKWOOD. After birth, and when the femur has been used, usually some sort of false acetabulum is formed which is shallow and incapable of retaining the head of the bone in position. In time this false socket may show arthritic changes, to which may be due much of the pain to which adults suffering from unreduced dislocations are liable. Mr. FAIRBANK draws especial attention to the condition of the ischium, which, he thinks, has hitherto not received the attention it deserves. This bone shows more changes than any other part of the pelvis except the acetabulum itself, of which it forms part. It often displays facets and ridges; the facets may have articulated (if such a term is applicable) with a facet on the lesser trochanter of the femur, while the ridges are probably due to the attachment of a much hypertrophied ischio-capsular ligament which, as will be seen later, plays an important part in the partial stabilisation of the luxated femur. The altered joint cavity overlaps the front part of this surface. The attachments of the distended and, in most cases, thickened capsule are very different from those of a normal joint, especially as regards their extent on the pelvis. The changes in the femur and those of the acetabulum are due partly to loss of the normal reaction and stimulus to growth furnished by pressure and friction between the two; in the femur the ossific centre in the head is late in making its appearance, and when visible in a radiogram it is smaller than that of the normal head. Abnormal pressure against the pelvis distorts its external form so that it is commonly wedge-shaped, and sometimes conical. As to the neck, Mr. FAIRBANK records the appearance of coxa vara in only nine out of 32 cases. One would hardly expect marked coxa vara when the bone is not exposed to superincumbent weight upon its head. Antetorsion of the neck has been much talked of, and has been regarded as one cause of relapse, but Mr. FAIRBANK has not found it often or in great degree.

How the weight of the body is transmitted from the pelvis to the femur in an ambulant case of dislocation of the hip has been much discussed. In the absence of the fulcrum or pivot of the normal pelvi-femoral articulation, there are only muscles and ligaments to prevent the upper end of the femur ascending to an indefinite extent. Yet although there may be a certain amount of so-called "telescopic" movement, it early becomes limited and ceases to increase. Mr. FAIRBANK shows that practically all the muscles attached to the upper end of the femur take part in the task of fixing and steadying it, while they are powerfully aided by some parts of the capsule, and particularly by the ischio-capsular band, already referred to, which forms a sling across the neck of the femur, whereon it often leaves marks of its pressure. Ascent of the upper end of the thigh-bone must obviously reduce the length of the limb as measured from the pelvis, but it is a curious fact that the limb itself, measured from the great trochanter, may be longer than its normal fellow. Mr. FAIRBANK refers to a case where, ten years after reduction of a congenital dislocation, the affected limb was three-quarters of an inch longer than the sound one; but in many cases the femur is shorter than normal. The changes in the capsule are well known. The hour-glass contraction and the thickening have been observed by surgeons in many open operations, and the contraction has been long recognised as one of the obstacles against securing a stable reduction by means of manipulation. It may be so great that, with the aid of adhesions, it serves actually to divide the cavity of the capsule into two compartments. The tendon of the ilio-psoas muscle, which in most cases bends sharply outwards and backwards just below the anterior inferior spine of the ilium, often accentuates the hour-glass contraction and forms such an obstacle to reduction as to require division. But a distinct isthmus in the capsule has not been seen by Mr. FAIRBANK more than once in patients under the age of 3 years. He describes certain folds of synovial membrane which are of importance in considering difficulties of reposition. One of these is situated vertically at the back of the acetabulum, and another more or less horizontally at the level of the upper acetabular margin. This fold hinders reposition of the head; it disappears when weight is put upon the limb, but when the head is pushed down in attempts at reduction it becomes folded into a ridge below. The cavity of the joint, as described by Mr. FAIRBANK, consists of three portions, one corresponding to the old acetabulum, another over the anterior and upper part of the retro-acetabular bone, and separated from the first by a vertical fold, and a third, still higher, corresponding to and enclosing the displaced head of the femur. All the pelvi-femoral muscles are adversely affected by the dislocation. The direction of their tendons is altered and their points of insertion have an abnormal mobility when the acetabular fulcrum is absent. Some of them find their origins from the bone reduced in area. Mr. FAIRBANK discusses each muscle at some length, and shows how the three levers on which the muscles act are lengthened or shortened by the displacement of the femoral head. It seems clear that in the absence of the fixed centre of angular movement in the acetabulum nearly all the muscles concerned must be contracting in the act of walking, in order as much as possible to fix the head. During this process there must be a good deal of waste in the form of "lost motion" or "back lash," as the mechanics call it. Pain in the young is probably due to muscular fatigue from this overaction, though in the old it is often attributable to arthritis.

On the question of treatment Mr. FAIRBANK is judiciously conservative. He deprecates the tendency of surgeons in America, and in a less degree here, to resort to open operation with increased frequency. Manipulative reduction gives the best results in young children, and if it is done before the age of 3 years, or better still before the age of 2, a permanent cure may be anticipated in a very large percentage of cases. When considering open reduction, the surgeon must remember that many patients lead tolerable lives with unreduced hips. The deformity is not dangerous to life and does not justify desperate measures. As to relapses, these are often due to want of outgrowth of the upper margin or shelf of the acetabulum, for which condition open operation and bone grafting is advisable. Open operation is also useful in patients of reasonable age whose hips are irreducible by manipulation. Attempts at reduction

after the age of 9 for a unilateral and 6 for a bilateral case are of very doubtful value. For old arthritic cases arthrodesis in an artificial acetabulum is likely to give the best result. In bilateral cases, of course, only one hip must be thus fixed.

NOISE AND ANNOYANCE.

A LARGE proportion of the ills which afflict the community result, directly or indirectly, from the development of a mechanical civilisation. Congestion in large towns has led to lack of accessory nutritional factors, exercise, sunlight, and fresh air; the use of mechanical transport has been the cause of hurry, anxiety, and to a certain extent of stagnation. It is only recently, however, that any public attention has been directed to noise as a social evil. We have grown up without noticing its gradual increase, but anyone who pauses to listen to the hubbub of a London street at midday will realise how noisy civilisation has become. Lorries crash and rattle; motor-cars constantly sound electrical alarms; motor-cycles bark; hawkers cry; trains thunder beneath and aeroplanes roar above; and the road-mender's pneumatic chisel and its brother the steel-worker's rivetter complete the pandemonium.

It is probable that most city dwellers find noise an intermittent nuisance, but several high authorities have now declared that it is a definite menace to the public health, resulting in loss of efficiency and energy. The British Medical Association at its last annual meeting passed a resolution in favour of legislation empowering local authorities to suppress unnecessary din, and submitted to the Minister of Health a long memorandum on the effect of noise. The Minister also received at the end of last year a deputation, including several eminent mental specialists, neurologists, and physicians, from the People's League of Health, requesting him to promote legislation to reduce noise. Dr. Dan McKenzie, in his third Chadwick lecture, delivered on Feb. 21st, dealt with the same subject and suggested administrative remedies. The effect of noise is considered on the healthy citizen, the ailing citizen, and the industrial worker. The general effect on the nervous system was summed up by Prof. G. Robertson in his speech to the Minister, and his view is supported by other specialists. "The first effect," he said, "is one of disturbance, of excitation, and of irritation. . . . It is impossible to measure these mental states with scientific accuracy or to weigh them exactly, but that they exist no one doubts. They have consequences of many kinds on conduct. They cause loss of temper, they play a part in quarrels, and they prevent deep and sustained thinking." Noise, he continued, might prevent a person from going to sleep, might break and interrupt his sleep, might make his sleep disturbed and unrefreshing, or might produce insomnia. Dr. Matthew Ray dwelt on its bad effect on the mentality of children, and Mr. E. B. Turner, speaking as a general practitioner of long experience, said that he had watched the effect of the irruption of a constant stream of noisy traffic into a previously quiet residential district; the inhabitants, who before had been healthy, developed numerous disorders. Sir Maurice Craig said that he had been impressed for many years by the increasing number of persons whose health had suffered from noises in the streets of London. Dr. Ray also pointed out the extent to which street noises delayed the recovery of hospital patients. Speaking of industrial noise, Sir Thomas Oliver contended that it caused structural changes in the organ of hearing and functional derangement of the nervous system. Holders-up and rivetters nearly all had their hearing affected in a few years, and suffered from impaired health.

Various remedies have been suggested for this evil. The deputation recommended that noise should be placed among the nuisances with which a sanitary authority is empowered to deal under Sections 91–112 of the Public Health Act, 1875. It probably also had in mind the possibility of legislation empowering the Ministers of Health and Transport to frame ad hoc regulations for the suppression of particular noises. Mr. Turner suggested the enforcement of zones of silence round hospitals; the placing of white lines across the openings of side roads into main roads to obviate hooting; limitation of weight and bulk of goods carried by road, and the speed and hours of work of lorries; pneumatic tyres on all lorries; the prohibition of sale of motor-cycles without effective silencers, and strict enforcement of the law on silencers; and the by-passing of as many country towns as possible. Dr. Dan McKenzie suggested that zones of silence during hours of silence should be enforced by the police; that streets in front of schools, colleges, hospitals, and nursing homes should be rubber-paved; that the size, weight, and speed of motor-lorries should be reduced, and that heavy goods should all go by rail. The British Medical Association, in addition to the nuisances mentioned, included the cries of street-vendors, the barking of dogs, and the careless handling of milk cans. They suggested that pneumatic drills should be forbidden altogether in proximity to occupied dwelling-houses at night, and that some educative campaign should be started to reform those who "race" their engines while shouting noisy good-byes after parties in the small hours.

Unfortunately, the remedy is not clear. The Minister of Health expressed serious doubt whether any clause concerning noise could be introduced into the Public Health Act as it stood, but manifested a desire for more scientific data; and this would probably be the attitude of the legislature towards any ad hoc measure. Many citizens might well hesitate to add to the already formidable extra-legal powers possessed by Government departments without overwhelming necessity. Again, as the Minister observed, many authorities doubt whether noise in industry interferes with the health of the workers to the extent suggested, and Dr. McKenzie, at the close of his lecture, admitted that a large proportion of the noises which troubled hospital patients originated inside the hospital. These public pronouncements have undoubtedly expressed a need, but that need will best be served in the immediate future by the patient accumulation of trustworthy evidence upon which legislative reforms would follow. The views expressed by the medical authorities who took part in the deputation to the Minister of Health were perhaps more emphatic than scientific; the effect of noise in producing nervous illness among factory workers, for example, should be capable of more exact proof than has been provided. One direction for exact investigation was indicated in our own columns last week by Prof. Swale Vincent and Mr. J. H. Thompson who showed the effect of agreeable sounds upon blood pressure in the human subject. Disagreeable sounds may well have a pressor effort which could be determined. Mr. Neville Chamberlain, in his reply, pointed out that he did not recognise in his own case the alarming effects depicted by one of the deputation, and there are certainly many who, like him, are unaffected by noises that may be

intolerable torture to less fortunate or more nervous people. Yet the fact that large numbers of people, whether nervous or not, undoubtedly suffer intensely from noise is sufficient for all reasonable persons to support measures to diminish this nuisance. Meanwhile, however, there exists another and perhaps a more effective approach to the problem. So much of the harm is done by individual thoughtlessness—the noisy theatre-party, the loose tailboard, the unnecessary klaxon, for example—that it seems reasonable to hope that real reform could be brought about by the same methods which have caused a marked reduction in the amount of litter and vandalism in our parks and public places.

Annotations.

"Ne quid nimis."

LOCAL GOVERNMENT BILL.

OUR readers will have followed in the daily press, and at greater length in our own columns, the proceedings in the House of Lords while this important measure has been under debate. Last week Lord Onslow offered to introduce a clause impressing upon local authorities the desirability of their fullest cooperation with the voluntary hospitals, the offer being in reply to Lord Reading's criticism of the lack in the Bill of such provision. As a result a clause was agreed which was so far satisfactory that Lord Dawson withdrew his intended amendment, the first part of which was thereby met, relying on Lord Onslow's offer to amend the new clause on the Report stage of the Bill so as to ensure consultation between the public assistance committees and representatives of the local medical practitioners of the area. The feeling of the medical profession will certainly be in favour of any plan which will bring private practitioners, individual or consultant, into working cooperation with the public health services, and it is difficult to see upon what grounds so important a provision can be refused, or why anything but general profit should be expected from it. An account of the debate will be found on page 571 of this issue of THE LANCET.

INJURIES IN WORKSHOPS.

THE war and the decade succeeding it has seen many far-reaching changes in the practice and conduct of industry. Not least important of these is the greater attention paid to the human factor, and among other aspects of industrial welfare work the prevention and treatment of accidents is one that has naturally received a good deal of consideration. This particular problem was brought into much prominence during the war, when the speeding up of production was partly responsible for an increased number of industrial accidents. By the Police, Factories, &c. (Miscellaneous Provisions) Act, 1916, the Home Secretary was empowered to make statutory orders regarding the provision of first aid and ambulance arrangements in factories. In 1919, by which time the obligatory provision of these orders had been applied to a comparatively small number of industrial processes, the Home Office issued a small pamphlet, for the guidance of employers and others, on the general principles of first-aid and ambulance arrangements. Sections on first-aid boxes and their use, ambulance rooms and their equipment, the removal of injured persons and the organisation and training of first-aid personnel were followed by appendices and plates; the whole forming a concise and useful guide to the subject from the point of view of those to whom it was addressed. In 1923 the mass of statutory orders had reached the stage where simplification was desirable, and by the Workmen's Compensation Act of that year (which was not repealed in respect of first-aid matters by the Workmen's Compensation Act, 1925) the whole of British industry was brought into line, and the universal provision of first-aid arrangements was made obligatory in all factories. Voluntary societies and the private efforts of individual firms have done much to forward the work of caring for the injured at work, so that to-day most industrial plants are fitted to deal adequately with all those minor accidents which have so unhappy a knack of having unfortunate sequelæ as a result of sepsis or neglect. Official action during this time has been consistently helpful, and the changes brought about by the 1923 Act were effected without friction largely owing to the conciliatory and helpful advice given in all cases by the Home Office. After ten years of progress and change the Home Office pamphlet which proved so useful at its first appearance has passed to a second edition,[1] and while it retains all its former virtues some of these have become somewhat dulled by the passage of time. Change for the sake of change is undesirable, but the complete re-drafting of such a publication as the one under review tends to maintain interest, whereas its mere reprinting with a few minor additions and complete with the original war-time photographs may induce a sense of stagnation rather than progress. The 1919 edition urged the necessity for a more extended course of first-aid training for welfare workers, and suggested that the courses might have to be revised in the light of this need. The paragraph is reprinted in the new edition, but no indication is given of what has been done during the preceding decade to supply a need which, owing to the extended scope of the work called for by the Workmen's Compensation Act, 1923, has become vastly more important than it was ten years ago. The rest of the booklet is accurate, concise, and helpful to the layman confronted with the task of complying with the regulations or making a voluntary effort to provide facilities in excess of those required by law; but anyone who compared the two editions might be pardoned for wondering whether any official notice had been taken of the mass of voluntary effort made by progressive firms in the past few years, while an inquirer making his debut in this field might well ask whether the photographs really represent the last word in design. If he deduced from this that the rest of the book was a little out of date, he would be wrong; but attention to details of this kind sometimes makes the difference between interest and apathy.

PARASITIC PROBLEMS IN THE LESSER ANTILLES.

THE oldest of Britain's surviving colonies and once the most highly prized of all, the Sugar or Caribbee Islands, now have sunk into comparative oblivion. Many factors have been responsible for this: the opening up of the new and larger lands elsewhere, the abolition of cheap slave labour, the fall in the price of sugar, the lessening demand for the long-stranded sea-island cotton used in lace-making, are some of the more obvious. Yet although they are now not much in the public eye unless some devastating hurricane or some volcanic outburst brings them forcibly into the daily papers, they present important problems to the hygienist. Some of these—more particularly those caused by the animal parasites—were considered by Dr. T. W. M. Cameron in a paper read last week before the Tropical Diseases Section of the Royal Society of Medicine. The most widespread and serious problem is malaria, which is common on most of the islands. Barbados, once free from this disease, was the seat of a serious epidemic in 1927, which has not yet been brought under control; and the only islands now free from the parasite appear to be Montserrat and St. Kitts.

[1] First Aid and Ambulance for Factories and Workshops Welfare. Pamphlet No. 4. 2nd edition. Home Office. H.M. Stationery Office. 1929. 4d.

Filariasis, another mosquito-borne disease, is still rampant in many of the islands, although in general its importance seems to be steadily declining. "Barbados leg," as elephantiasis once was called, is now comparatively rare in that island, and even in St. Kitts and Antigua, which once were strongholds of the disease, there has been a very considerable decrease in its incidence during the past 20 years. The majority of the important diseases, however, are fæces-borne; enteric and dysentery, diarrhœa both in infants and children, and helminthiasis are the commonest of these. Enteric and dysentery are not so universal as they used to be, but helminthic parasites are still very common. Hookworms are found in all the islands but are especially common in the southern groups. In Barbados, with two kinds of soil—clay and chalk—they are widespread on the first and rare on the second; in Antigua where chalk, clay, and volcanic soils are found, there is a light infection on the chalk, medium on the clay, and heavy on the volcanic portions. In all districts soil pollution is universal and heavy, and light infestations are due to natural causes, not to man's activities. The round worm, *Ascaris lumbricoides*, is even more common and about 60 per cent. of the inhabitants are infected. These two parasites cause a great amount of debility and are very important economic factors in the prosperity of the islands.

Schistosomiasis has not the same general spread as the truly intestinal parasites, and is confined to St. Kitts, Antigua, and St. Lucia among the British islands. The parasite found in these islands and throughout the tropical parts of the New World is *Schistosoma mansoni*. It was first reported by Sir Patrick Manson from Antigua in 1902, but there is reason to suppose that the patient acquired his infection in St. Kitts. The parasite, like all the others, originally came from Africa, probably with the negro. In St. Kitts, however, for over a hundred years African monkeys have roamed the forests and plagued the planters; Dr. Cameron found that in addition to being an economic nuisance, they were also harbouring *Schistosoma mansoni* and were consequently likely to prove a serious factor in any schemes for the eradication of the disease. Therapeutic measures, which have been successfully used against this parasite in man, could in theory eradicate it if all human carriers were treated and cured and if no reservoir existed to reinfect the snails. But a wild monkey cannot be treated and so eradication must necessarily, in St. Kitts at least, lie in attacks on the immediate hosts which live in considerable numbers in the few streams in the island. Among the minor horrors of the West Indies are insect pests of all sorts: the domestic flies, particularly evident on Sundays when the shops are closed; mosquitoes, which bite in relays throughout the 24 hours; chigger fleas, which burrow into the skin of the toes; Jack Spaniards, large wasps which can sting most ferociously; bêtes rouges, harvest mites which climb up the grass on to the limbs and where the clothing fits tightly, enter the skin—these and many others plague the life of the stranger. In a few islands poisonous snakes still exist, while in Trinidad there lives a species of blood-sucking bat which, while it does little permanent damage, is a considerable source of annoyance to man and beast alike. The major problems of these islands, however, can be solved only by drainage and fæces disposal schemes—and above all by education. The negro has still to acquire the latrine habit; when he has done this the high degree of parasitism will be enormously reduced. Venereal disease, another major scourge, can only be eliminated by an enlightened and educated public opinion. Malaria and filariasis depend on mosquito eradication in which drainage plays an important part. But all these hygienic measures depend on material prosperity and a new outlook on the part of the peasant. The material prospects of many of the islands are not too good, but a trade in tropical products and a multitude of visitors to what might easily be ideal health resorts would help to counteract the adverse effects of beet and artificial silk on the cane-sugar and cotton industries. The outlook of the negro is another matter, however, which will only be altered after much constant endeavour. Nevertheless, as Dr. Andrew Balfour pointed out in the discussion, considerable advances have been made within the last 30 years and more than would seem possible at the moment may yet be accomplished. These islands are among the beauty spots of the earth. Their soil is fertile and their climate, though tropical, is tempered by the trade winds from the Atlantic. Any effort to make them agreeable health resorts would probably be well repaid.

SURGERY IN THE DIABETIC.

In prolonging the lives of diabetics insulin has increased the number of those who develop surgical complications or coexistent diseases needing surgical treatment. J. A. Reed[1] finds that the surgical mortality-rate has been reduced to one-third of what it was before the use of insulin, but, of course, these patients still run a greater operative risk than normal people. For successful treatment the first essential is close coöperation between the physician and surgeon, both before and after operation. The aim of treatment is to maintain the blood-sugar at its normal level, to promote storage of glycogen by the liver, to overcome ketosis, and to give a sufficient amount of fluid. To accomplish this Reed is accustomed to give a diet containing 100 g. of carbohydrate, the same amount of fat, and 1 g. of protein per kg. of body-weight, with enough insulin to abolish ketosis and bring the blood-sugar to normal level. When this has been done the operation is performed, preferably two hours after the usual breakfast, given in fluid form. In his opinion the anæsthetic of choice is ethylene and nitrous oxide, with ether in cases where greater relaxation is required. After operation the patient should return as soon as possible to his previous diet, while starvation is to be avoided at all costs. In the treatment of diabetic gangrene, Reed again emphasises the importance of early consultation with the surgeon, and points out that to-day infection and gangrene are greater enemies to the surgical diabetic than acidosis and coma. Focal sepsis and arteriosclerosis are the two most important predisposing causes of gangrene, and uncleanliness of the feet is a factor which should not be forgotten. In a paper on diabetic gangrene, B. C. McMahon, Rudolph Scharf, and W. M. Bartlett[2] say that although cases of dry gangrene often recover entirely with adequate medical treatment, gangrene which is tending to spread, or is associated with severe toxæmia or septicæmia, or occurs in a patient whose diabetes cannot be controlled with insulin and diet, should be treated as a surgical emergency. In their series of 19 cases, ten healed by primary and six by secondary union, while one failed to heal in six months. In one of the fatal cases death followed reamputation for secondary gangrene, and in the other it was due to septicæmia. These writers emphasise the importance of radical surgical treatment, bearing in mind the risk of possible reamputation, and for gangrene below the knee they prefer the Stokes-Gritti amputation, both as regards healing capabilities and the giving of a good weight-bearing stump.

NEW VIEWS ON RHEUMATISM IN CHILDHOOD.

One result of the renewed interest in rheumatism is that work in other parts of the world is being studied with more care in this country. As far as rheumatism in the child is concerned many observers think that the disease is much more prevalent here than elsewhere, but it would be rash to conclude from this that knowledge of the disease is confined to these islands. Work in America has attracted attention to the possibility of rheumatism being in the nature of an allergic

[1] Surg., Gyn., and Obst., Jan. 1929, p. 44.
[2] Ibid., p. 125.

phenomenon, and in a paper [1] recently published in Germany Prof. E. Stettner discusses articular rheumatism in children with the same theory in view. Starting with the universally accepted idea that acute polyarthritis is the result of an infection he points out that there must be some other factor present—namely, the reaction of the body to the invading noxious agent. Most authorities ascribe polyarthritis to the presence of some focus of sepsis, but no very clear idea of the nature of the "poisoning" is offered, nor is it explained why various serous membranes should be picked out for disorder. Moreover, infection by the common pyogenic organisms may occur at any age; yet infants and very young children for the most part escape acute rheumatic fever. Stettner believes that this is because the patient must first develop an increased sensitiveness to infection, and that when this is present further infection, even if slight, will produce an allergic polyarthritis. A latent period is necessary during which there are certain chemical changes, and as a result the allergic state develops along with local anaphylactic phenomena in the synovial membranes and endocardium. When the "rheumatic reaction" has thus taken place other factors, such as cold and environmental conditions, may be exciting causes of the acute attack. The influence of heredity has also to be remembered, and in a group of 50 cases specially studied by Stettner for the purposes of his paper there were 20 in which the parents or grandparents had suffered from rheumatism, and 13 in which a history was given of eczema, asthma, and other phenomena of the hypersensitive state. The clinical studies of the cases of polyarthritis under observation brought out other evidence against the idea of a simple infective process. There were many examples of derangement of the capillary blood-vessels, such as peliosis and hæmorrhages from the gastro-intestinal and renal tracts. The blood picture also was not like that of ordinary sepsis; there was only a slight leucocytosis, with no "shift to the left" in the Arneth count and no disappearance of the eosinophils—all three points being opposite to what would be expected in septic infection. Stettner concludes that, in addition to the exogenous factor in rheumatic diseases, there is an altered state of the organism as a whole. Polyarthritis is, of course, seen in other definite diseases such as dysentery or serum sickness, where the type of reaction of the synovial membrane is similar to that of acute articular rheumatism, and such joint changes appear to be part of an allergic phenomenon. The unsatisfactory feature of the hypothesis is the fact that acute joint changes in the rheumatic fever of children in this country are nowadays very rare and the slow insidious onset of rheumatic carditis, often without fever, does not fit in well with the picture of the allergic state presented by Prof. Stettner.

VACCINES IN THE TREATMENT OF ACUTE PULMONARY DISEASE.

A QUARTER of a century ago the medical student looked forward eagerly to the day when pills and potions would give place to vaccines and sera in the treatment of acute and chronic infections. Lectures on pharmacology and demonstrations in the apothecary's shop were of service only in so far as they might help him on the day of trial at the examination hall. In the years to come the laboratory would displace the dispensary as the armoury from which he would draw his weapons. To those instructed by Metchnikoff and Wright the control of infection would become almost as simple as the heart could desire.

In a useful summary of recent French work on vaccine therapy Dr. Georges Rosenthal [2] recalls the familiar argument. An invading army of microbes, assisted by their appropriate toxins, is opposed by a mobilisation of leucocytes supported by the opsonins, agglutinins, and precipitins of the plasma. The issue of the struggle depends on the ability of the leucocytes to engulf and digest the offending micro-organisms, a struggle in which the vital energy of the leucocyte is the all-important factor. If this energy is insufficient the capacity of the white cells may be strengthened by training; the stimulus of pathogenic organisms which have been deprived of offensive power by death or enfeeblement may be used to evoke the latent possibilities of their defence. As Dr. Rosenthal points out, this theory unites the specific and general conceptions of vaccine therapy. It is simple and applicable, and though the results of its application have been disappointing, our disappointment may possibly spring not so much from the inefficacy of vaccines as from generalisations based on insufficient experience. Our French colleagues, who have made a more extended trial of this method, still maintain that it is valuable, and go so far as to say that those who refuse to use vaccines in acute pulmonary disease are guilty of criminal neglect. In the absence of any satisfactory alternative method of treatment the opinion of so many continental physicians should not be ignored.

Theoretically, in applying vaccine therapy we should determine the exact bacterial formula and prepare a vaccine corresponding to a recognised pathological grouping. The struggle against microbe A will be best maintained by a leucocyte trained to engulf microbe A. But the leucocyte stimulated by microbe B will be a better fighter against A than one which has not been so stimulated, especially if A and B belong to allied groups. This explains the benefits attributable to group and non-specific vaccines. An exact formula is difficult to establish and autogenous vaccines involve loss of time in preparation and considerable expense. For practical purposes, therefore, says Dr. Rosenthal, the determination of the principal organisms concerned, and the choice of an appropriate stock vaccine, will suffice. In deciding what is the nature of a pulmonary infection lung puncture may be essential in children whose sputum is swallowed, but in the adult culture from expectorated material may serve. Cultures from the nasopharynx have also been employed on the assumption that all organisms found in broncho-pneumonic areas are also to be found in the upper respiratory tract. Thus L. Duchon holds that whatever organisms may have been responsible for the onset of a broncho-pneumonic attack the terminal fatal aggravation is often due to a descending infection, and he therefore includes the disintegrated Klebs-Löffler bacillus in his vaccine. Unfortunately, Dr. Rosenthal points out, there is a wide divergence of opinion about the best composition of vaccines. Thus Bruschettini recommends an emulsion prepared from intrapleural exudate provoked by the injection of streptococci, staphylococci, pneumococci, and *Bacillus coli*, a method first used against secondary infection in pulmonary tuberculosis. Duchon uses solutions of streptococci exposed to the disintegrating action of *B. pyocyaneus* after filtration forming "lysats vaccins" which contain living antigens. A. Dufort and P. Sédallion maintain that streptococci have no power to provoke the formation of antibodies, while Duchon and A. Mauté submit that the streptococcus is alone responsible for their production. A. Ranque and C. Senès lay chief stress on the importance of the pneumococcus and consider that streptococci only give rise to antibodies if grown in media with ascitic fluid. Thiercelin advises an emulsion of enterococci given by the mouth. Thus the diversity of opinions expressed seems to be only limited by the number of investigators. The best method of introducing the vaccine has also been a matter of dispute, the hypodermic, intramuscular, oral, intravenous, nasal, intratracheal, and transpulmonary routes having all been employed. In transpulmonary inoculation a fine needle with multiple openings is used for the injection of an aqueous isotonic solution, and this is the method which Rosenthal regards

[1] Deut. med. Woch., Feb. 15th, 1929, p. 264.
[2] Arch. med.-chir. de l'appar. resp., 1928, iii., p. 209.

as the best for infants. In adults lipo-vaccines (e.g., oily suspensions of streptococci or pneumococci) may be administered through a fine curved cannula inserted into the trachea, the dosage being similar to that recommended for hypodermic administration.

Dr. Rosenthal concludes that while vaccine therapy has long passed the experimental stage in the treatment of broncho-pneumonia, the problem of the best composition of vaccines has yet to be solved, and this must involve much further work on the part played by various organisms in pulmonary inflammations. Meanwhile he maintains that ignorance and sloth alone are responsible for the prevalent neglect of therapeutic measures of the highest value.

THE BIOLOGICAL ESTIMATION OF TOXICITY.

THE assumption that the efficacy of organic arsenical preparations varies directly with their toxicity has its origin in the circumstances which followed the production in this country, during and after the war, of batches of novarsenobenzene (neosalvarsan). It will be remembered that British manufacturers found the details set out in the patent specifications to be inadequate, and had to rely on the ingenuity of their technical advisers to supplement them. At the request of the Board of Trade the Medical Research Council devised biological tests to ensure that the products on the market were suitable for clinical use. After various experiments, an empirical basis for testing [1] was found. Only such batches were passed as were tolerated by at least four out of five mice in an intravenous dose of 0·3 mg. per gramme of body-weight. Using this method it was discovered that the preparations submitted for testing fell into two well-marked groups. One group resembled the original German product in appearance, solubility, lack of stability when exposed to air, and toxicity. The other group was much more soluble and stable and far less toxic, and for all these reasons achieved a popularity with practitioners which became disturbing when reports began to come in from reliable sources criticising the potency of the material. A test for therapeutic efficacy then became necessary and was adapted from one developed in America. The substances were injected into the veins of mice experimentally infected with the trypanosome *T. equiperdum*, the minimum curative dose being arbitrarily fixed as that which caused disappearance of the organisms from the circulating blood at a period of 72 hours after the injection. By this means it was found that the more stable, less toxic batches of material were inferior in therapeutic value to the older preparations. Clinical trials on syphilitic patients with surface lesions confirmed the results obtained on mice. The manufacturers were fortunately able to remedy the defect when their attention was called to it, but the variations made obvious the desirability, which has since been confirmed, of imposing an official control of potency as well as of freedom from toxicity. Meanwhile the creation of internationally valid standards under the direction of the Health Organisation of the League of Nations has ensured that a substance of uniform strength and toxicity is available for comparison. The International Conference on Biological Standards, which met in Geneva in September, 1925, laid down tests for potency and toxicity, but was unable to prescribe the limits of permissible variation from normal values, since evidence as to the accuracy with which either property could be estimated was lacking.

An attempt to furnish this evidence as regards the toxicity of one substance, novarsenobenzene, has now been made, under the general direction of Dr. H. H. Dale, by a group of workers [2] in the Department of Biological Standards of the National Institute of Medical Research. The task has been found unexpectedly complex. The determination as to what shall be regarded as a lethal dose is the first step—shall it be one which kills any animal, every animal, or some intermediate proportion? Again, even when a characteristic curve relating doses of the standard preparation to death-rate in mice had been determined, how could a test be devised that would discriminate sharply between those samples which conformed to the standard within reasonable limits—say, 20 per cent.—and those whose toxicity was still higher? The work was further complicated not only by the suspicion of variations in sensitiveness between individual animals, but by the possibility of variations due to age, strain, parentage, dietetic history, sexual development, seasonal changes, and sex. Not even weight could be excluded, though the test dosage given was in milligrammes per gramme weight of the experimental animals, for it was discovered that small immature mice had more resistance than mature ones, whose resistance diminished only up to a certain age.

It was found eventually that errors could be to some extent eliminated by choosing mice within narrow limits of body-weight—between 18 and 20 g.—of the same strain and kept and fed under similar conditions. These precautions having been taken, various samples were tested for toxicity against the standard preparations, and an investigation into the tests in current use in various countries was made. The British test hitherto performed is criticised as lacking sharp discrimination, since of batches 50 per cent. more toxic than the standard only two-thirds of the samples are rejected. The German test involves an inconveniently large number of mice. The Japanese test is more lenient than either, but this leniency is neutralised if, as Prof. Hata, of Tokyo, believes, the Japanese mice have a lower resistance than European strains. The official American test is on rats and not on mice. In the light of all this information the onerous task of framing an improved test was undertaken. The final demand of this new test is for a survival of at least 50 per cent. of 30 mice weighing 18 to 20 g. injected with 7·6 mg. per mouse of the sample under examination. The test is conducted in three stages, so that those samples which are practically certain of acceptance or rejection are eliminated after the preliminary test on ten mice; thus as many as 30 mice are needed only for the doubtful samples submitted to further test. Since the details of this method were worked out, the International Conference held at Frankfort in 1928 has agreed to recommend a 20 per cent. excess of toxicity as the limit of tolerance. This is a standard less rigid than was contemplated, but can be met by altering the dose given to each mouse from 7·6 mg. to 7·2 mg. Emphasis is laid on the fact that the true function of the international standard preparation is to test the sensitiveness of the mice which are being used to assess unknown samples, and to provide a basis of comparison between the effects of tests carried out on different species of animals. Finally, in a note on the need for a therapeutic test, it is recorded that one batch of material of such high toxicity that it would not have passed any test was found to have very small therapeutic activity. The conclusion is that while toxicity and efficacy may show a certain parallelism within a limited range of samples of a particular manufacture, it is still necessary to maintain independent tests for both properties in relation to a common standard.

The fact that this intricate work is concerned only with the toxicity of one preparation shows what difficulties lie in the way of a controlled pharmacology of biologicals. It has hitherto resembled the Carrollian game of croquet where flamingoes as mallets hit hedgehog balls which have been only too likely to influence the direction of motion by their own individuality. The business of eliminating or allowing for the variables is well in hand, and provided that the game is not required to be played on the old system of rules, there is no reason why

[1] THE LANCET, 1922, i., 779.

[2] Special Report Series, No. 128. Reports on Biological Standards, II. Toxicity Tests for Novarsenobenzene (Neosalvarsan). By Florence M. Durham, J. H. Gaddum, and J. E. Marchal. H.M. Stationery Office. Pp. 40. 9*d*.

it should not be organised on a plan that all nations can follow. Miss Durham and her colleagues have made a valuable contribution to this end.

STERILITY IN WOMEN.

THE haphazard methods generally employed for the relief of sterility are rapidly being replaced by scientific investigation and rational treatment. It is essential that the medical man should be able to advise his patients from accurate knowledge of the character of the operation required, the prospect of pregnancy following such an operation, and the unavoidable risk entailed. To the principals the importance of the operation depends on their desire to become parents and it is only right that a fair statement of the prospects should be laid before them. Henry Schmitz has lately made a careful survey of the literature of this subject, and though his paper contains no original work, his analysis of 118 papers is certainly worthy of notice. He points out that salpingography was first practised by W. H. Cary who described his method in 1914. After this, little seems to have been done until I. C. Rubin in 1920 published his results of tubal inflation by means of oxygen. Since then, methods of filling the tubes with opaque substances have been revived. Lipiodol, the substance now most commonly employed on account of its harmless properties, was introduced to gynæcological practice in 1925 by Sidney Forsdike who has shown that it is absorbed from the peritoneal cavity without producing any reaction. Some of the most recent work in this country is to be found in his book, "Sterility in Women," which gives a clear account of the information to be got by the intelligent use of gas for inflation of the Fallopian tubes and the radiographic evidence obtainable by the injection of lipiodol into the uterus. Schmitz finds that in 371 cases of salpingostomy reported by 13 authors, pregnancy supervened in about 8·4 per cent. He lays stress on the fact that if there is to be any hope of success the mucosa of the tube must be intact. The treatment in these 371 cases seems to include every type of plastic operation on the tube, and we suggest that when the operation consists merely of freeing adhesions and opening out intact fimbriæ, some word other than salpingostomy should be used to describe it. Forsdike thinks that the prospect of patency being maintained is poor if the operation involves more interference than this. Cases of pregnancy following resection and reimplantation of a tube into the uterus are quoted, but probably this operation is very rarely successful. Both Forsdike and Schmitz mention the occurrence of pregnancy after the grafting of the ovaries into the uterine cornua but neither gives any opinion on the value of the operation.

During the next few years further advances will no doubt be made in the investigation and treatment of sterility. It is to be hoped that accurate statistics of all cases treated and the clinical details of the operative procedure will be given, as well as a record of subsequent pregnancies.

TRAVELLING SCHOLARSHIPS.

THE Chadwick Trustees are inviting applications for two travelling scholarships of £400 a year tenable for one year to be awarded next July, one in sanitary science and the other in municipal engineering. The candidates must be British subjects between the ages of 25 and 30 who have graduated in a British university. These facts have already been announced in our columns, and it may be well to indicate that scholarships to enable students and post-graduates to obtain wider knowledge conducive to international relations in medical science are all too few, so that the opportunity presented by the Chadwick Trustees should make a wide appeal to younger members of the medical profession. The fact that the applicant is required to submit for the approval of the Trustees a scheme of study which he would be prepared to undertake and his itinerary should stimulate the applicant to the intensive study of different aspects of preventive medicine, while successful applicants will have a splendid opportunity of playing their part in helping towards that international reciprocity in medicine, the value of which, and, indeed, whose advent depends upon the clear vision and practical work of its votaries. Applications should be made by letter before March 25th to the clerk of the Chadwick Trustees, 204, Abbey House, Westminster, London, S.W. 1, stating name, qualifications, age, and proposed object of study or research accompanied by copies of testimonials and evidence of previous work undertaken or published.

THE next social evening at the Royal Society of Medicine will be held on Wednesday, March 20th, when the President and Lady Dawson will receive the guests at the Society's house in Wimpole-street. The reception will begin at 8.30 P.M., and at 9.15 Dr. Leonard Williams will give an illustrated address on Napoleon III.

THE Minister of Health of the National Government of the Republic of China, Hsueh-Tu-Pi, has invited Sir Arthur Newsholme, Dr. Louis Rajchman, Secretary of the League of Nations Health Organisation, and Dr. Victor G. Heiser, of the United States Public Health Service, to form an International Advisory Council to assist his Ministry.

WE regret to record the death of Viscount Finlay of Nairn, British member of the Permanent Court of Arbitration at The Hague, and sometime Lord Chancellor of England. The eldest son of William Finlay, F.R.C.P., of Edinburgh, he followed at first his father's profession and graduated in medicine at Edinburgh University before being called to the Bar in 1867. The viscounty descends to his only son, Sir William Finlay, judge of the High Court of Justice.

THE Thirteenth International Congress of Ophthalmology will be held at Amsterdam and The Hague from Sept. 5th to 13th. The main subjects of discussion will be the Ætiology and Non-operative Treatment of Glaucoma, the International Campaign against Trachoma, and the Diagnosis of Suprasellar Tumours, whilst among other topics to be reported on are methods of examining visual acuity, perimetry, determination of axis in astigmatism, examination of the sense of light, standardisation of rules for the examination of railway employees and other workers, and the ophthalmological study necessary for physicians and specialists. Besides the official sessions and receptions a programme has been arranged allowing for excursions and sight-seeing. The secretary of the Dutch National Committee is Prof. W. P. C. Zeeman, Wilhelminagasthuis, Amsterdam.

WOMEN'S HOSPITALS.—The erection of the new Joint Hospital for Women at Liverpool, towards the cost of which £101,000 has been subscribed, will shortly be begun.—Redlands Hospital for Women (the Glasgow Women's Private Hospital), which is staffed and managed by women, last year treated 557 patients, and is in serious need of extension.

WESTERN OPHTHALMIC HOSPITAL.—At the first annual meeting in the new premises in Broad-street, Holborn, held last week, it was stated that, the new hospital being nearly thrice the size of the old one, the cost of maintenance would be almost trebled and would amount to £20,000 a year at least. About £120,000 had been raised, but to clear off debt and provide for the increased cost of working a further £50,000 was needed. The Guild of Gratitude, formed two years ago by the out-patients, numbering 11,000 members, has collected £2500.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLXXXIX.

THE AMBULATORY TREATMENT OF PILES.

APART from the ordinary methods of operation, two different methods of treating piles are in use: (1) injecting the pile mass with various solutions, and (2) cauterising the interior of the pile under local anæsthesia.

In employing any of the procedures which permits the patient to carry on his usual occupation without lying up or using any special precautions, certain conditions must be complied with. The method must not cause the patient anything but a minimum of discomfort, it must be at any rate reasonably efficient in its results, and above all it must be safe, so safe indeed as to be practically fool-proof. Any method, therefore, which offers the least prospect of any complication does not commend itself. Complications which are to be feared are infection of the pile at the time of treatment, with the possibility of abscess formation or, worse still, pyæmia or septicæmia, or necrosis so severe as to result in the separation of a slough with subsequent infection or secondary hæmorrhage.

The Injection of Astringent Solutions.

In order to render the first-named complication—viz., infection of the pile—as remote as possible, it is clear that a powerful antiseptic solution is to be preferred as an injecting medium to any other. It is on this score that I have never used many solutions which have been extensively, and I am sure most successfully, employed by many practitioners. I first used a 10 per cent. emulsion of phenol in liquid extract of hamamelis and water, as recommended by Mr. Dudley Wright,* and later a 20 per cent. solution of phenol as recommended originally by Mr. Swinford Edwards as long ago, I believe, as 1882. This was formerly used with great success by Mr. A. Morley, but I understand from his recent writings that he is now using a weaker solution. That a 10 or a 20 per cent. solution fulfils the first of the requirements stipulated—viz., absolute freedom from any risk of infecting the pile under treatment—is shown by the fact that though I have performed several thousand injections, I have been unable to trace a single instance of abscess formation.

As far as the second complication is concerned—that is, necrosis resulting in the formation and separation of a slough with the possibility of secondary hæmorrhage or infection, or both—I do not think that any particular solution will guarantee immunity. Necrosis may be caused by injecting any solution if the amount injected is too great. The only way of preventing it is by exercising great caution in the quantity inserted. I shall refer to this point later in describing my own technique, which I believe renders the chance of injecting too much so small as to be negligible.

The third complication to be feared—secondary hæmorrhage—I believe to be due, apart from infection, to necrosis, and the only way of preventing it is once again by exercising caution in the amount injected.

The outcome of my experience is, then, that in treating piles by injection, a solution consisting of one part of phenol, two parts of glycerine, and two parts of distilled water can be recommended with confidence. Infection seems almost impossible, and if reasonable caution is employed, sloughing and secondary hæmorrhage need not be feared. This 20 per cent. solution has proved more efficacious in shrivelling up the piles than the 10 per cent., although the 10 per cent. solution gives very good results.

**The Treatment of Hæmorrhoids, H. J. Glaisher, 1913.*

Cauterisation under Local Anæsthesia.

This method is free from the risk of initial infection, as its originators wisely employ an antiseptic solution for producing anæsthesia. The heated cautery is its own sterilising agent. I have employed the method and have found it to be painless and effective. Reports that rather severe secondary hæmorrhage may occur about the fifth day, although only exceptionally and not of alarming degree, have induced me to abandon this procedure. It may be excess of caution, but unless a patient is under continuous observation, I do not care to run even the smallest risk of any complication if any means offer themselves for its avoidance. My own preference, therefore, is for the injection method, using as a medium Mr. Swinford Edwards's solution.

The Type of Pile Susceptible to Injection Treatment.

There are three things of far greater importance from the point of view of the practitioner who is contemplating treating piles by injection than the best medium. The first is the type of pile which is susceptible to this form of treatment, the second the anatomy and mode of development of the only kind of pile which is worth so treating, and the third what period of relief he is in a position to offer a patient who asks for treatment by this method. To dispose of the first question, I am frequently asked whether injections are any good for treating external piles. External piles are composed of skin and contain few blood-vessels, and the interior consists mainly of loose fibrous tissue. Any astringent solution produces its effect, as has been shown by Dr. Cuthbert Dukes, by causing thrombosis of the vessels and aseptic fibrosis of the loose areolar tissue which forms the core of the internal pile. It is therefore obviously impossible to abolish external piles by injection. The injection causes great pain, and unless enough were inserted to produce extensive sloughing, there is no prospect of cure. Such a barbarous method of procedure could scarcely find an advocate to-day. The key to the remaining two questions is to be found in Mr. Ernest Miles's admirable paper published in *Surgery, Gynecology, and Obstetrics* (1919, xviii., 407). The following account is based largely on Mr. Miles's observations. He divides internal piles into three types—each type producing special symptoms.

The First Stage Pile is usually small and is covered by healthy pink mucous membrane and is situated entirely above the muco-cutaneous junction (Hilton's line). The interior of the pile consists of a collection of small arteries, veins, and capillaries embedded in loose areolar tissue. Unless it is of unusual size prolapse does not occur. If, however, the pile is exceptionally voluminous the lower part may prolapse through the anal orifice and become strangulated. The only symptom at this stage is bleeding. The blood is bright red, and may be lost in large quantities. Bleeding usually occurs at defæcation, although exceptionally it may occur at other times.

The Second Stage Pile.—As times goes on, from being constantly dragged upon, the pile increases in length and bulk. The tissue in the region of Hilton's line becomes raised from the subjacent muscle, the vessels become more tortuous and thickened. From repeated friction the mucous membrane becomes thickened and loses much of its bright red colour. The symptoms are less profuse and less frequent bleeding and prolapse of the pile on defæcation with spontaneous reposition at the termination of the act. The pile now becomes of the variety which has been described as mixed—that is to say, it is covered above by mucous membrane and below by skin. The skin-covered portion tends to form an external projection which is always present.

The Third Stage Pile.—The process of enlargement continues. The pile becomes much bigger and a great part of its bulk consists of fibrous tissue. The mucous

membrane becomes still more thickened and purplish in colour. Bleeding is much less frequent and may be entirely absent. The chief symptom is almost intractable prolapse. The pile has to be manually replaced after each action and even then a process of redundant skin protrudes at the margin. The main mass of the pile comes down on very slight exertion, such as coughing, bending to tie up a shoe lace, &c. Patients have frequently told me that they have been compelled to give up playing golf and billiards on this account.

Obviously, it is unlikely that the injection of an astringent solution is likely to have as much effect on the third as compared with the first stage pile. This is borne out by experience. Small first stage piles can be so effectively shrivelled by one or two injections of carbolic acid that one may confidently describe them as being really cured—that is to say, the treated pile will not again appear. This does not mean, however, that the patient will never again suffer from symptoms of piles; it is possible to develop no less than three primary and four secondary pile masses, and a patient who presents himself with, say, three small primary piles, which are successfully treated by injection, is quite likely in the future to develop a fresh crop. I think, however, it is quite possible to save these patients from operation if the piles are treated as soon as they give rise to symptoms. I have a number of cases of such patients treated as long as seven years ago who have not, so far, developed any fresh symptoms. I think the injection method by far the best way of treating the early pile. It is superior to palliative measures such as the use of ointments and regulation of the bowel in that it not merely delays the growth of the pile, but actually shrivels it up.

For the second stage pile such a successful result cannot be expected. Periods which vary in length of immunity from symptoms can, however, be obtained. Anything from two to five years' immunity can be anticipated, when the process of injection can be repeated with further good results. It is a mistake, however, to assure these patients that injection will really cure them, in the sense that for the rest of their lives they will never be troubled again with this complaint.

For the third stage pile much less relief is to be expected. The core of the pile already consists of fairly tough fibrous tissue, and any slight increase in the fibrosis will not be of much value in preventing prolapse, which is the main, if not the only, symptom which calls for relief. Further, the skin-covered portion of the pile constitutes its main bulk. This cannot be injected without causing great pain with no resulting profit. Temporary relief may be obtained by judicious injection of the upper portion of the pile. It is, however, only transient, and if a cure is wished for, operation must be advised.

Summary.

Indiscriminate operation for piles has fallen into disrepute because patients with one or two first stage piles have a few years after operation developed a fresh crop. An example of a patient for whom operation should unhesitatingly be advised is one of, say, 40 years of age, with a long history, who appears with one or more third stage piles and, on proctoscopy, shows more of them. A carefully performed operation should in such a case mean a real cure. Neither injection nor operation can be recommended unless an accurate estimate has been made of the number and stage of development of the piles. Broadly speaking, the advice which should be given to a patient may be crystallised as follows: injection should be recommended for the first stage pile always, for the second-stage pile sometimes, for the third-stage pile never. It is obvious that such a drastic summary requires qualification. For example, a patient aged 80, with troublesome third stage piles, chronic bronchitis, and a weak heart should not be advised to submit to operation when a fair measure of relief can be promised by injection.

The Technique of Injection.

The patient is best treated in the left lateral position. A good head-lamp, speculum, lubricant, ordinary record syringe, and a minim glass to contain the solution are required. The speculum I use is a modification of Allingham's rectal speculum. This is a speculum with an ebony obturator and a lateral slit, which extends the whole length of the speculum. The modification consists in occlusion of that portion of the lateral slit which lies opposite the margin of the anus. In other words, the lateral slit only extends for about three-quarters of the length of the speculum. The occluded portion prevents the loose skin at the anal margin from prolapsing into the lumen of the speculum and thus obstructing the operator's view of the upper part of the pile. I attach considerable importance to the use of this form of speculum. After it has been inserted and the obturator withdrawn, it is possible in a normal anal canal to rotate it through a complete circle with but slight discomfort to the patient, in spite of the relatively sharp margins of the lateral slit.† If any piles are present they prolapse at once through the lateral slit, and, according to the degree of prolapse, an estimate of their magnitude can be made. The speculum should be inserted in the positions in which the presence of a pile is to be anticipated—namely, in the right anterior, right posterior, and left lateral segments of the anal circumference. This involves a triple insertion of the instrument, which is undoubtedly a defect, but one which I do not see how to overcome. I formerly made use of the simple tubular speculum used by Mr. Dudley Wright and Mr. Morley. With this speculum the piles can only be seen at the end of the speculum and, when using it, I have often been in doubt as to whether piles were actually present or whether I was only observing the inevitable involution of normal mucous membrane which must occur in using this instrument. I think the use of a speculum with a lateral slit has undoubted advantages. The pile mass can be clearly demonstrated and a rough estimate formed of its size, and the point of the needle can be accurately inserted to the depth desired. In this way over-distension of the pile with the injecting material, which is probably the main cause of sloughing, subsequent infection, and secondary hæmorrhage, can be avoided.

The injection is made with an ordinary record syringe and a reasonably small hypodermic needle. The point of the needle is inserted about a quarter of an inch into the core of the pile. It is thus an interstitial injection, which is made slowly to allow the fluid gradually to work its way into the substance of the pile. I am sometimes asked if I do not insert a needle into the vein of the pile. The reply, of course, is that there is no vein in the pile, but a plexus of veins. It is a matter of chance whether the point of the needle enters one of these, and of no consequence whether it does so or not. The amount injected varies from 2 to 12 minims, according to the size of the pile. It is impossible to give any guide as to how much should be injected. It is better to err on the side of giving too little rather than too much. The thing to avoid is distending the pile to such a degree that, in the opinion of the operator, sloughing is likely to result. I usually inject two piles at one sitting. The third pile, if present, is injected a week later. The two piles originally injected receive a second injection a fortnight after the first. The process is continued at these intervals until the pile is shrivelled. For a moderate case of three early second stage piles about five or six separate sittings are necessary. Sometimes a small single first stage pile will respond to only one injection. On the other hand, during the last seven years I have injected a well-developed

† I use this procedure as a final test when examining patients I have operated on for piles to prove to my own satisfaction that I have actually removed them all.

second stage pile no less than 21 times, starting with a series of five injections at intervals of a fortnight. The owner of this pile has since been operated upon.

Lubricant.—K.Y. solution, or some form of oxycyanide paste as used for the lubrication of cystoscopes, is the best lubrifacient, since it is more easily removed from the speculum when sterilised by boiling than is vaseline or any oily substance.

Sterilisation of Instruments.—The hypodermic needles are most conveniently sterilised by keeping them in pure spirit. The speculum should be cleansed and boiled for each fresh patient, and also the record syringe. It is not necessary to sterilise the surface of the pile before inserting the needle.

Conclusions.

I would like to say that this indication of my preference for a particular injecting solution or particular technique must not be interpreted as a criticism, direct or indirect, of other methods which have proved highly satisfactory in capable hands. My preference for 20 per cent. carbolic is determined merely by its strong antiseptic powers which should as experience has shown, make its use practically fool-proof. The same considerations apply to my choice of speculum.

Far more important than the actual solution and technique employed, provided they are properly used, is the question of how far the injection method can be advocated as a cure. My own experience, for what it is worth, has led me to the conclusions which have been formulated above.

W. S. PERRIN, M.Chir. Camb., F.R.C.S. Eng.,
Assistant Surgeon, London Hospital.

Special Articles.

THE LOCAL GOVERNMENT BILL:

COÖPERATION OF PUBLIC ASSISTANCE COMMITTEES WITH THE VOLUNTARY HOSPITALS AND WITH THE LOCAL MEDICAL PROFESSION.

THE House of Lords went into Committee on Tuesday, March 5th, on the Local Government Bill, the Earl of DONOUGHMORE in the chair.

Transfer of Functions of Poor-law Authorities.

On Clause 1 Lord HENLEY moved the first of a series of amendments designed to make non-county boroughs and urban district councils with a population of 50,000 or over primary poor-law units as well as county boroughs and counties. He said he believed that this amendment would remove a number of anomalies and tend to improve the administration of the poor-law by providing a larger number of manageable units and by relieving county councils of some of their burdens.

The LORD CHANCELLOR, in resisting the amendment, said that its effect would be to increase the number of poor-law areas contemplated by the Bill from a total of 144 to 193, an addition of more than one-third. That in itself was a retrograde step, and one which was in direct contradiction of the principle of the measure. The whole basis upon which the Government's proposals were to be carried out was that of taking the country and county borough respectively as the unit for the allocation of the finance and for dealing with loss of rates and so on, and the weighting of population for poor relief among other things. Moreover, the amendment would not make for efficiency. One object of getting comparatively large areas into one poor-law area—the whole of the county except the county boroughs—was to enable county councils having a large area with which to deal to choose hospitals in which the different services which might be required for the treatment of disease to be specialised and to be concentrated. There might be in one district of a county comparatively few cases of a particular kind of illness, and yet there might be in the whole county a sufficient number to justify a hospital being devoted to its special treatment. The Minister of Health had given some instances of the very diverse kinds of case which were found being treated in one institution under the existing poor-law arrangement, and one great object which they had was to enable these wide areas to centralise in different suitable institutions the sort of treatment which was desired for particular classes of disease. If they were going to narrow and cut down the areas they would render that task much more difficult of achievement. Further, it would in some cases so emasculate the remaining part of the county, if they took the urban districts with the larger population out of it, that the area left would be quite unable to bear the burden of its poor-law.

Lord THOMSON said what could be done in the case of roads could surely be done in the case of human beings. The poor-law was not to be abolished by this Bill, only the boards of guardians, and the functions of the poor-law were being left to men who were not from their position and general attitude so likely to afford sympathetic treatment to persons who were out of work through no fault of their own. That was the argument for the amendment, and it had not been answered by the Lord Chancellor.

Earl BEAUCHAMP, in supporting the amendment, said that bodies representing areas with a population of 50,000 would be able to provide just that local knowledge of particular circumstances which was very desirable, and yet be in a position to deal with such problems as unemployment in one trade affecting the whole area.

The amendment was rejected by 78 votes to 24.

Coöperation with Voluntary Hospitals: Lord Reading's Amendment.

On Clause 4 the Marquess of READING moved an amendment to insert immediately before the proviso "In so far as such scheme relates to hospitals the council shall take reasonable steps to seek and to continue to secure full coöperation with every voluntary hospital within or serving the area of the council." He said the amendment was of very great importance to voluntary hospitals throughout the country. He moved it with the object of protecting them and of ensuring that there should be full consultation with them before any action was taken that might impair in any degree their usefulness as well as of ensuring that full effect would be given to what he understood was one of the main purposes of the Bill. The whole object of this amendment was to ensure coöperation with the voluntary hospitals and coördination of the various efforts so that there might be no overlapping of the work of, say, rate-supported hospitals, and voluntary hospitals might be consulted in order that the best might be made of existing institutions. The words he desired to insert were almost identical with those which appeared in Clause 27 of the Scottish Bill. When he put down the amendment he thought he was not going counter to the views of the Minister of Health, but rather supporting him, and he was confirmed in that view by finding an amendment on the Order Paper which proposed to insert a clause ensuring that county councils should make such arrangements as they thought desirable for securing that the functions transferred to them should be dealt with in consultation with some body in their area representing the voluntary hospitals. He would like to know whether it was proposed to introduce that provision.

The Earl of ONSLOW (Paymaster-General): It is.

The Marquess of READING said that he thought that the Government were perfectly reasonable in taking this course and that the introduction of this provision would allay the apprehensions of those who were concerned with the voluntary hospitals.

He would like to ask when this amendment had been inserted and the Bill came into effect the Ministry of Health would draw the attention of local authorities to this part of the Bill and particularly to the new provision which was being introduced. The clause as it stood was not mandatory and he was anxious that it should be emphasised that the Ministry were strongly in favour of consultation and coöperation with the voluntary hospitals and that coördination was their desire. It would be wrong to start a rate-supported hospital whose functions would overlap those of the voluntary hospital. This would injure the latter and impair the value of the medical teaching and training, the nursing and medical research which was provided by the voluntary hospital. If Lord Onslow would assure him that it would be made plain that the Government intended that there should be this coöperation and consultation he would be prepared to withdraw this amendment and others standing in his name and accept the Government's proposal.

Lord Dawson's Plea for Representation of the Local Medical Profession.

Lord DAWSON had given notice to add at the end of the clause:—

"A council in preparing a scheme under this section shall have regard to the desirability of consulting (*a*) any body existing in the area which is so constituted as to be representative of the voluntary hospitals in the area, and (*b*) any body existing in the area which is so constituted as to be representative of the duly qualified medical practitioners in the area, including those on the medical and surgical staffs of any voluntary hospitals in the area."

He said that he would speak to the amendment of Lord Reading because it was cognate to the subject of his own. For his part he did not think that the voluntary hospitals required any defence, for their work was known, and without their medical and nursing progress would not exist. If they needed support it was because of the aid that they could bring to the new hospitals which must inevitably arise. He could not contemplate that in the future there would be voluntary hospitals alone, for municipal hospitals must be established. It was true that these hospitals would arise very slowly, but that made it all the more important that in their early beginnings they should have the advantage of consultation with the great voluntary hospitals that at present existed and that they should be brought into touch with their traditions. And if that was to occur, it seems to him essential that those who did know about voluntary hospitals should coöperate with those who had had no experience up to now and who had had little or nothing to do with curative medicine. In times gone by the medical officer of health was the person, and he was now the main person responsible to the council on questions of health. As long as those councils dealt with preventive medicine that was a scheme which would work well enough. But the medical officer of health had no knowledge of curative medicine. He was not competent to deal with it. When, therefore, the councils were going to enter on the foundations of hospitals which would steadily grow year by year, it was surely reasonable to suppose that they needed to bring to the aid of the medical officers of health the assistance of those members of the medical profession who had spent their lives in dealing with the cure of disease. The whole-time medical officers in England and Wales numbered altogether 1740 men, whereas the medical men in England and Wales who were in actual practice numbered 30,000. Was it reasonable to suppose that this great and large work of hospital management into which the councils were going to enter could be undertaken by them without an organic nexus being formed between themselves and those whose lives had been spent in curative medicine? He could not see what objection could be raised to the course he suggested. It was quite easy to find a coherent body of medical men in any district as it was to find a coherent body of those representing the management of the voluntary hospitals. Experience of the poor-law was of little or no help in the administration of a curative hospital. The traditions of the poor-law were quite different. The status of the medical officers was different and they had not had the necessary experience. Indeed, experience of the poor-law might even be a disadvantage in founding a hospital if it was to approximate to the quality and work of the voluntary hospitals. It was along the line of hospitals that he saw progress in attainment of the health of the people, for in dealing with public health it would be more and more necessary to have institutional provision. Improvement in the quality of panel practice as distinct from quantity would depend very largely on the amount of institutional provision. He did not deceive himself by thinking that voluntary hospitals alone were going to be any longer adequate for the medical needs of the country. For that reason, above all others, it was essential that in their early beginnings the council hospitals should get the right tradition as well as the advantage of the long experience which the voluntary hospitals had gained. He was most anxious that there should be some machinery provided of the kind he had indicated and that it should not be left to the free will of the local authority. It should be recorded in the Bill, so that if some Minister of Health should come into office in favour of an entirely nationalised or municipalised medical service for the country it would be more difficult for him to transpose the medical policy of the country. He was not wedded to the words of his amendment, and if Lord Onslow could find some other form which would effect the object he had in view—an object which had the wide support of his own profession—he would be satisfied.

Lord JOICEY said that he was thoroughly in sympathy with the speech of Lord Dawson. At the present moment it was most important that they should not go wrong on this question. He believed that the voluntary hospitals were doing such immense good in the country that it would be a disastrous thing if their great services were not assisted generously where necessary. He certainly would be very much opposed to any hospital which could be established either by a local authority, or by a Government Department, doing anything to interfere with the splendid work which the voluntary hospitals were doing.

Need for the Goodwill of the Medical Profession as a Whole.

Lord ATKIN said he thought that the amendment which had been put down by Lord Onslow was drafted in too restricted a form. The only obligation that would be imposed on the council under that clause was that they should make arrangements for securing that the functions with respect to hospital accommodation would be discharged "after consultation with such body, if any, within the county . . . as they consider to represent the voluntary hospitals in the area." It would seen to follow that if there were no body within the county which could be considered to represent the voluntary hospitals, then no statutory obligation would be placed upon the county council at all, and he suggested that in a good many of the smaller counties it would be impossible to find such a body. No doubt there was a general hospital association, but that was not a body so far as his information went which had county committees or which could be regarded as in any way representative of the special needs of any particular county. It seemed to him that under the restricted form of the Government amendment the county council might very well proceed without consulting anybody. He preferred the words in the Scottish Bill. Moreover, the very much stronger claim which had been made by Lord Dawson was ignored by the Government amendment. It was essential, if this new scheme was to take a real hold and serve a proper part in the future welfare of the country, that it should be done with the goodwill

and coöperation of the medical profession. He supposed that the new municipal hospitals, if founded, would desire, as did the voluntary hospitals, to draw upon the goodwill and services of consultants and specialists, and surely it would be right that the scheme should be devised in the first place after consultation with the medical profession as a whole. The medical profession was organised. The British Medical Association represented for all practical purposes the whole of the profession, and had branches in every county, and therefore there should be no difficulty in regard to consultation.

Viscount KNUTSFORD said that as one who had had some experience of voluntary hospitals, he wished to say that they were extremely anxious to coöperate with the proposals in this Bill. They had no fear of competition; what they desired was that when any new hospital was started it should not overlap and do the same work as the voluntary hospitals. They expected and hoped that the new hospitals would strengthen their weakness and they were anxious to help them to do their work well.

Lord BLEDISLOE appealed to the Government to consider the smaller cottage hospitals and institutions of that type which were doing invaluable work in many parts of the country, sometimes under considerable financial stress, and were not merely serving local requirements but also assisting the counties in their administrative work. He could not help feeling that if consultation was confined to what was called a "body" in the Government amendment, these smaller hospitals would not receive representation.

Lord JESSEL said that the Government amendment seemed very nebulous, and he did not understand in the case of London what would be the proper authority. He should also like to know whether the Government were going to adopt the view so eloquently put forward by Lord Dawson in regard to the representation of the medical practitioners in the country. He hoped that the Government would consider the very strong feeling that there was on both sides of the House on this matter.

Lord GORELL also urged that attention should be paid to the case of the smaller cottage hospitals and that the Government should do something to meet Lord Dawson's point in regard to the medical profession.

The Marquess of READING said that he supported the view of Lord Dawson. The more he looked at the words of the Government amendment the more unhappy he was in regard to them. He suggested that it should not be left to the local auhority to determine the body which should be consulted as representing the voluntary hospitals in the area.

The Government's Reply.

The Earl of ONSLOW said that it was the desire of the Government to encourage as much as possible coöperation between the local authorities and the hospitals which had produced such good results in the past, and from which so much could be expected in the future. The object with which the Government and the Minister of Health was mainly concerned was to make the best use of existing institutions. It was not because of want of sympathy with those objects that the Government had found some difficulty in framing a clause to meet the wishes of noble lords. It was on the question of making statutory provision that the difficulty cropped up. It had been sought in certain quarters to make use of the analogy of Clause 7 (3), which said that county councils should consider the appointment of members of existing poor-law authorities on guardians' committees. If the hospitals had been organised in the same way as the poor-law authorities were to-day, and were statutory bodies defined in law, perhaps that analogy might have been of assistance. But that was not the case. They all knew what was meant by a voluntary hospital, but there was no precise definition of such an institution. When the Voluntary Hospitals Commission was instituted, the first thing they had to do was to devise a definition of voluntary hospitals, and a very difficult task it was. It was rendered more easy because it was done for a special purpose—namely, the distribution of a Government fund to certain institutions which were badly in need of money. The definition worked fairly well, but he did not think that it could be used at the present moment because it did not include such institutions as mental hospitals and other borderline institutions. It seemed, therefore, that the only way of meeting the wishes of noble lords was to draft the clause in as wide terms as possible, making it flexible and adaptable to every area. Areas differed very largely in administration and amount and in regard to their hospital provision. So that the Government proposed in their amendment that county and county borough councils themselves should be the judges of the bodies which might be representative of the voluntary hospitals in their areas for the purposes of consultation. The Minister of Health had authorised him to say that he would use such means as he properly could to bring by circular or otherwise to the notice of the local authorities the provisions of the new clause, and point out to them the desirability of the fullest coöperation with the voluntary hospitals. Under the provisions of the Government's new clause which he would move later, it would be open to councils of counties and county boroughs to enter into consultation with either the local voluntary hospital committees where they were functioning or where they might be resuscitated for the purpose, or with the descendants of those committees, or to utilise the committees of the British Hospitals Association as they existed at the present time, or as he believed they were shortly to be altered. As to the question of the representation of the smaller cottage hospitals, the voluntary hospitals committees, where they functioned, consisted of representatives of the local authorities both county and county borough in the area, of the medical profession, both general practitioners and consultants, of the voluntary hospitals, both of the larger type and of the cottage hospitals. Supposing use was made of the British Hospitals Association committees, any hospital had only to join the Association, a branch of which existed in each area, and its views would be available for the local authorities through that particular channel.

A New Clause at the Report Stage.

With regard to the very important point raised by Lord Dawson, he understood that the noble lord accepted the Government amendment as meeting his views as regarded the first part of his own amendment, but that he had other suggestions to make to the House with regard to the second part. He (Lord Onslow) found it difficult to accept the amendment which Lord Dawson had put down, but he understood that the noble lord did not insist upon the exact words and was ready to accept any form which the Government might put forward which would give effect to his ideas. While unable to propose anything at the moment, he hoped on the Report stage to be able to add to the clause which he had put down words which would provide that some of those who were to be consulted and who should be referred to by the county councils or county borough councils should be representatives of the medical profession in the district. He hoped that the two together would make a clause which would be acceptable to those of their lordships who were so deeply interested and so cognisant of all matters connected with hospitals and their work, and would secure close coöperation and consultation with voluntary hospitals in different districts.

Earl RUSSELL said he thought it was clear to Lord Onslow that it was the general sense of the House that this matter must be settled in a way that would be regarded as satisfactory by those who knew most about it. He had no doubt that the noble earl would take that warning.

The Earl of ONSLOW: We are all equally anxious to have the matter settled in the manner that the noble earl has indicated.

Lord HANWORTH said that the Government's new clause was drawn so loosely that it was quite ineffective. Something of this sort was really necessary:—

"The Council of every county and county borough shall"—

and then they ought to introduce the latter portion of the clause—

"after consultation with such body within the county or county borough as represents the voluntary hospitals in the area, and anybody constituted to be representative of the duly qualified medical practitioners in the area, make such arrangements as they think desirable."

Without some condition of that kind put in at an early stage of the clause it was impossible to carry out the real intention of the House.

The Marquess of READING, in withdrawing his amendment, said he hoped that Lord Onslow would consider what language would adequately meet what the House desired.

Lord DAWSON intimated that he would not move his amendment at that stage. He said that he took that course in the hope that they would get something more out of the Government than good intentions. He did not want them, on the one hand, to dissemble to the medical profession, and on the other to kick them downstairs. The more he looked at the amendment suggested by the Government the more it seemed to fall under that head. It really gave them very little. He hoped that in recasting the clause the Government would fall in with the excellent suggestion of Lord Hanworth and give them something clear and definite which would bring in contact those who were going to administer with those who really knew something about it.

Alternative Powers of Giving Assistance.

On Clause 5 Earl RUSSELL moved an amendment to include any other local or general Act among the Acts mentioned in the first section of the clause.

The LORD CHANCELLOR, in resisting the amendment, said that so far as the Government knew there was only one other Act, except those set out in the clause—namely, the Lunacy Act—which had been deliberately excluded in view of the rather comprehensive legislation relating to the lunacy law which the Government hoped to introduce later dealing with the Royal Commission's Report.

The amendment was negatived without a division.

The New Clause.

On Wednesday, March 6th, the Earl of ONSLOW moved after Clause 12 to insert the following new clause:—

Consultation by councils of counties and county boroughs with bodies representing voluntary hospitals.—"... The council of every county and county borough shall make such arrangements as they think desirable for securing that the functions transferred to them under this part of this Act with respect to the provision of hospital accommodation will be discharged after consultation with such body, if any, within the county or county borough as they consider to represent the voluntary hospitals in the area."

He said that he moved the clause in accordance with the undertaking which he gave to Lord Reading on the previous night. It was subject to the promise given to Lord Dawson that on the Report stage he would add words to provide for consultation not only with the representatives of the voluntary hospitals in the district—that was the county or county borough—but also with the medical and surgical staffs of the voluntary hospitals. He would like this amendment to have the fullest consideration and therefore he begged their lordships to allow him to postpone any further observations until the Report stage.

The Marquess of READING said that he was quite satisfied with the promise of Lord Onslow that he would undertake to consider the language of the clause before the Report stage; it was a little difficult to accept it as it stood.

The Earl of ONSLOW assured the noble marquess that any observations that had fallen from the noble lords during the previous day's debate would receive the most careful attention.

Lord COZENS-HARDY said that the words "within the county or county borough," and "in the area," would hardly carry out the intentions of the clause. Hospitals, particularly those to which medical schools were attached, had fairly definite spheres of influence, but they very seldon marched with the boundaries of the county or county borough. That point, he thought, should be taken into consideration in reconsidering the words.

Its Wording to be Reconsidered.

Lord DAWSON had given notice to move as an amendment to the proposed clause to add the words: "and with any body existing in the area which is so constituted as to be representative of the duly qualified medical practitioners and of the medical and surgical staffs of the voluntary hospitals in the area." He said that as Lord Onslow had stated that he had not had time to consider the language of this clause, he (Lord Dawson) would suggest to their lordships that it was unwise to commit themselves to a wording which admittedly did not meet the wishes of those who desired the voluntary hospitals to be taken into account. Would it not be better to reconsider the whole matter? If Lord Reading thought otherwise he was prepared to defer to his greater experience.

The Marquess of READING said he would prefer to have the clause inserted at that stage. He was quite content with the statement of Lord Onslow that he would consider the language of the clause before the Report stage when the House would have an opportunity further to consider the matter.

Lord DAWSON said he fully accepted the judgment of Lord Reading in the matter. Lord Onslow, on the previous day, told their lordships that he would try to find words which would meet the words of his (Lord Dawson's) amendment. He would remind the noble earl, since he had said that day that he would try to meet him on the question of the representation of the medical and surgical staffs of the hospitals that that was not all that was wanted. He wanted a body "representative of the duly qualified medical practitioners and of the medical and surgical staffs of the voluntary hospitals." He would add that the people who were concerned with hospitals in that connexion and had experience of them numbered something like 30,000, whereas those who were concerned with whole-time administrative duties, the medical officers of health and other whole-time officials, numbered only about 17,000.

Lord ONSLOW's new clause was agreed to.

Lord DAWSON said he would not move the amendment of which he had given notice.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Health Propaganda.

As it leaves the Commons the Scottish Local Government Bill contains an important new clause enabling county councils and town councils to contribute from the rates to a central body or committee for the purpose of health propaganda. This has arisen out of the arrangement between the Scottish Board of Health and the Scottish Committee of the National Council of Social Hygiene. To this Committee the Board, as the Ministry in England, gave a direct grant for carrying out approved programmes of propaganda. Now the whole burden will be placed on the local authorities, who receive definite powers of contribution. The greater local authorities in Scotland have always been sympathetic to propaganda in their own district against venereal disease, and the V.D Regulations conferred on them full powers to spend money on education and demonstrations of every practicable kind. As they have already found the work of the Scottish Committee highly

satisfactory and as they have never hesitated to send delegates to the conferences, they will probably continue to support the Committee's work on the new footing. The position of venereal disease is peculiar in that a local authority normally has a large proportion of cases coming from outside its own area. There is therefore room for a central propagandist body, which is not in any sense an alternative to the work of the local authority itself. It is also important to add that the new clause applies to all forms of health propaganda. This is new and important. The placing of responsibility for health propaganda on the local authorities, subject to central direction, is really more in the tradition of Scottish administration than the method of direct central grants to independent bodies. The concern about venereal diseases in the various areas is not as acute as it was ten years ago; but curative work is maintained at a very high standard and the loss of popular interest may be balanced by the gain in the popularity of the clinics. One thing is certain—namely, that the local authorities have nowhere used to the full their existing powers of educational propaganda and teaching.

Presentation to Sir Leslie Mackenzie.

On Feb. 23rd Sir Leslie and Lady Mackenzie were entertained to luncheon by the Scottish Branch of the Society of Medical Officers of Health and the Scottish Society of School Medical Officers. Dr. Thomas Adam, President of the former Society, was in the chair, and Sir Leslie received his portrait in oils at the hands of Dr. A. K. Chalmers. In making the presentation Dr. Chalmers spoke of the changes in the work of the Scottish Board of Health during the period in which Sir Leslie was its medical member. With all the principal movements in the public health services in the last 25 years he had been intimately and honourably associated. His inquiries with Prof. Matthew Hay into the physical training of school-children had led to the physical education of the school-child, and here Dr. Chalmers recalled the part Lady Mackenzie had played in promoting the further care of the "toddler." Dr. John Macintyre, President of the Society of School Medical Officers, said that the birth of the school medical service, with which Sir Leslie had been so closely associated, was probably the most outstanding event in State medicine in the last half century, and for that alone their guest would hold a foremost place in the annals of public health administration.

In returning thanks Sir Leslie Mackenzie said that no meeting could give him more profound satisfaction than the present gathering, which represented every phase and stage of his work in the public health and school administration of Scotland. Reviewing some aspects of this work he said that for three years after presenting his report, with Prof. Hay, to the Commission on Physical Training, he had spent a great deal of his time in lecturing on the medical inspection of school-children, to which the profession was at first unfavourable. The younger generation, however, had seen that they had at last succeeded in bringing clinical medicine on to the preventive plane; and inspection gave rise to a demand for treatment. As he had almost all his life from time to time been a teacher and had taught "everything from infants in the elementary schools up to candidates for the Cambridge moral sciences tripos and the London D.Sc., not to speak of arts and medical pupils and the general public," he looked on medical examination and treatment of school-children as among the most important things he had ever had a hand in. Twenty-five years ago everybody was speaking of infant mortality and to-day they spoke of child health or child welfare, and here also as in housing, Sir Leslie Mackenzie was able to claim that he had played a certain part. He concluded by speaking in warm terms of the value of the work done by the civil service.

Lady Mackenzie also expressed her thanks, and Dr. A. S. M. Macgregor proposed a vote of thanks to the painter of the portrait, Mr. Henry Kerr, R.S.A.

The Usher Institute.

Prof. P. S. Lelean's recent lecture to a branch of the Edinburgh Women Citizens' Association on the teaching of sex hygiene was a lucid and effective exposition of the problem and of the necessity for educational action. He has previously spoken on the same subject in Glasgow, under the auspices of the Corporation and the Borough Insurance Committee.

Not long ago Prof. Lelean arranged at the Usher Institute a demonstration of child welfare work for the Scottish medical officers of health, and a special demonstration of teeth and eyes for the school medical officers. For the eye demonstration Dr. George Mackay lent his beautiful and extended series of eye pictures, which are among the best ever made. For the dental demonstration the Dental Board of the United Kingdom lent their fine exhibit of teeth models, which was originally prepared by the Edinburgh Dental Hospital, under Dr. Guy and is available for "Health Weeks" and the like. It is obvious that the Usher Institute is rapidly becoming an active educative centre for medical officers, health visitors, teachers, and others responsible for health demonstrations or propaganda. The museum has now been remodelled to include a permanent exhibition of child welfare and related work.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Infectious Diseases Regulations.

THE Minister for Local Government and Public Health of the Irish Free State has issued Public Health (Infectious Diseases) Regulations to supersede the Regulations issued in 1919. They are to come into operation on April 1st. The following diseases are rendered compulsorily notifiable: acute primary pneumonia, acute influenzal pneumonia, malaria, and dysentery. A case of malaria occurring in an institution and induced for therapeutic purposes is not notifiable, but if such patient leaves the institution while still, in the opinion of the practitioner, liable to recurrences of the disease, the medical officer of health of the district in which the patient is going to reside is to be notified. The fees for notification are 2*s.* 6*d.* for cases occurring in private practice and 1*s.* for cases occurring in the practice of a medical man as medical officer of any public body or any institution. Regulations are made defining the duty of a medical officer of health in regard to investigating the source of infection in cases reported to him, and preventing the spread of infection. Sanitary authorities are empowered to make arrangements for testing susceptibility to diphtheria and administering protective agents. Detailed instructions are given as to the procedure to be adopted by the medical officer of health in dealing with malaria; typhus and relapsing fever; and enteric fever, diphtheria, and dysentery.

The issue of the Regulations is a gratifying evidence of the increased attention given to matters of health by Government authorities in recent years.

Goldsmith and Medicine.

Dr. T. P. C. Kirkpatrick, honorary lecturer in the history of medicine in the University of Dublin, gave a lecture in the School of Physic recently on the relations of Goldsmith and the Medical Profession. He gave a sketch of Goldsmith's life as a student in Trinity College, where he took the degree of B.A. in 1750. His course seems to have been an average one. He had been thanked by the board for his diligence, and he had also been reprimanded. His relations with his tutor were not happy, and it was likely that the menial duties attached to his position as a sizar were galling to one of his high spirit. There was no reason to believe that while at Dublin he contemplated studying medicine, or

that he had any connexion with the School of Physic. In 1752 he began the study of medicine at Edinburgh, and appears to have been a fairly diligent worker. His comments on the teachers of the time are given in a letter to his brother. He left Edinburgh after a couple of years without a degree, but this was the common practice of the time. Whether he ever studied medicine at Padua or elsewhere on the Continent is unknown. At any rate some years later he is found practising medicine at Southwark, but an offer of a surgeoncy in the service of the East India Company fell through on the ground that he had no professional qualification. In 1763 and thereafter he styled himself "M.B.," and though no documentary record has been found to show the source of this degree, Dr. Kirkpatrick thinks it likely that Goldsmith had been granted the degree by the University of Dublin. It was quite in accordance with the practice of the University at the time to grant such a degree in absentia on evidence of study such as Goldsmith was in a position to show, and the records are very imperfect. There is a newspaper paragraph to the effect that he had received the degree of M.B. at Oxford ad eundem, a fact which would be explained if he already had the degree from Dublin. The charge that Goldsmith had misled the authorities of Oxford as to his standing at Dublin is unlikely to be true. Dr. Kirkpatrick closed his lecture with an account of Goldsmith's final illness.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Danger (to the Surgeon) of Cosmetic Operations.

THE case which has recently so disturbed the medical profession and intrigued the public is briefly as follows. A certain Madame Le Guen, formerly employed in an important position by a dressmaking establishment, was meditating matrimony, and in this connexion was greatly distressed over the lack of symmetry of her legs. She consulted an eminent Parisian surgeon, Dr. Dujarrier, and explained to him how suicidal she felt over the situation. Moved by her obvious distress, he consented to perform an operation which would reduce the circumference of her right leg and render her more symmetrical. Her skin proved insufficiently elastic, and the circulation in the limb inadequate. Gangrene supervened, and the leg had to be amputated. On Monday, Feb. 25th, judgment was given in favour of the plaintive patient, who was awarded 200,000 francs damages. In the course of the proceedings a tribute was paid to Dr. Dujarrier's high character by the court, but in the judgment it was pointed out that even if he had committed no mistake in the technique of his operation, he could not escape responsibility for the unfortunate results. In this matter the defence was on the horns of a dilemma; to confess to faulty technique would be to weaken the case; but, on the other hand, if the technique of the operation had been perfect, it followed that Dr. Dujarrier had recommended an operation which, even if conducted with the best of skill, might end in tragedy. As for her suicidal state of mind being a justification for the operation, the court found that this complication suggested the need of psychiatric rather than surgical aid. The lay press is disquieted as well as keenly interested in this judgment which, if it is not reversed by an appeal which is said to be impending, will hamper, if it does not completely paralyse, the cosmetic surgeon. Already heavy fines have been imposed on several skilled radiologists who, in attempting to remove superfluous hairs, have burned their patients' skins. Even the expedient of obtaining from the patient a promise in writing that she will not turn on the doctor and rend him if he is unsuccessful is likely to fail him. For, according to the judgment in the present case, a document containing such a safeguard would be considered invalid on the assumption that the signatory was, at the moment of signing, so set on his or her object that he or she was hypnotised by it, and could, therefore, not be held responsible. Considering how much French surgeons have contributed to the art of plastic and cosmetic surgery in connexion with mutilated victims of the war, it seems hard that this branch of surgery should have become so perilous for the surgeon himself.

Fatal Accidents in the Streets of Paris.

The Parisian Prefecture of Police has just published statistics which show that in 1928 there were 278 fatal street accidents in Paris itself, and 241 in its suburbs. Pedestrians accounted for 68 per cent., cyclists for 14 per cent. and drivers of vehicles for 18 per cent. In 43 per cent. of all the cases the victims were themselves responsible for the accidents, and in the case of pedestrians as great a proportion as 58 per cent. were to blame. A classification of the accidents according to the vehicles concerned showed the following figures: taxicabs, 68, in 32 of which the driver was to blame; private cars, 185, in 105 of which the driver was to blame; heavy vehicles, 151, in 77 of which the driver was to blame; motor-cycles, 23, in 18 of which the rider was to blame; bicycles, 13, in 7 of which the rider was to blame; horse-drawn vehicles, 15, in 8 of which the driver was to blame; tramways, 50, in 9 of which the driver was to blame; motor omnibuses, 13, in all of which death was due to the imprudence or neglect of the regulations on the part of the victim. The most dangerous hours of the day were between 4 and 6 P.M. (80 deaths) and between 6 and 8 P.M. (112 deaths).

MEDICINE AND THE LAW.

Lunacy Certification.

DURING debates on the Local Government Bill it has been stated that the reform of the Lunacy Law is recognised as urgent but cannot be fitted into the Bill and must await the attention of some future Parliament. Some comments by the Chief Constable of Chester during criminal proceedings on March 6th may help to persuade the public that reform is urgent. Two persons were before the court. One was a boy of 18, charged with attempted suicide by cutting his throat in a crowded thoroughfare in the town. The other was a sheep-dealer from North Wales, aged 37, charged with cruelty to sheep by leaving them without food in a field during the recent frosts when five of the animals died of starvation. Both the accused had been under medical observation but, according to the Chief Constable, the doctors, while declaring them to be insane, refused to certify them under the Lunacy Act in view of litigation in the High Court where heavy damages had been awarded against a medical practitioner for alleged negligence in certification. The boy was placed on probation for two years; the sheep-dealer was remanded to prison for further medical observation. The Chief Constable is evidently pessimistic in the present state of the law. Recently, he said, a person was certified at Chester by the prison doctor, but, on the case being sent to the poor-law authority, their medical officer declined to certify.

No reform of the Lunacy Act will eliminate honest differences of opinion among practitioners, but the grant of reasonable protection to the certifying doctor will at least overcome his present hesitation to take a personal part in a procedure which exposes him to heavy financial loss. Meanwhile one may take note of the phenomen on that those concerned in administering the criminal law, who often accuse the medical profession of discovering proof of lunacy too readily, can also complain that the profession is too slow in detecting it.

Injections by Probationary Nurses.

At an inquest at Deptford on March 6th on the death of a woman in the Bermondsey and Rotherhithe Hospital, the coroner (Dr. W. H. Whitehouse) found that death was due to septicæmia following the injection of drugs into the arm as a treatment for heart disease given by probationary nurses at the

hospital. From the evidence of Dr. R. C. Harkness, medical superintendent of the hospital, it appeared that the injections included digitaline and anti-streptococcus serum and that they had been administered by five persons. Four of these were probationary nurses, one in her second year, two others in their fourth year, and the fourth about to take her final examination. Dr. Harkness said he regarded them all as trustworthy. Asked by the coroner why the injections were not given by medical men, he replied that it would not always be practicable as they have to be given at all sorts of hours. Asked why they should not be given by the sister of the ward or staff nurses, he answered that the probationers were under training and must have a certain experience to learn their duties. Probationers, he added, have to give injections in the course of their training and this is usually done under the supervision of the night sister. The coroner observed that it did not seem right that alkaloids like digitaline should be given by probationers in the middle of the night; he thought that a fully trained nurse should be present to supervise such injections. A verdict of "accidental death" was recorded.

MEDICAL SOCIETY OF LONDON.

ANNIVERSARY DINNER.

THE 156th Anniversary Dinner of the Medical Society of London was held in the Empire Rooms of the Trocadero Restaurant on Friday, March 8th, Dr. J. W. CARR, the President, presiding.

The toast of the evening, Prosperity to the Medical Society of London, was proposed by Mr. Justice MCCARDIE, who pointed out that, such was the antiquity of the Society, the earlier dinners would have taken place when Burke was still speaking in Parliament, Johnson was walking down Fleet-street, and Boswell was taking notes. Mr. Justice McCardie recognised as two outstanding qualities in the medical profession their sense of enjoyment of life and their accuracy in their work—to the doctor, he thought Babbage's correction of Tennyson would appeal, when the eminent calculator pointed out to the poet that his well-known lines should have run: "Every moment dies a man; every moment one and one-sixteenth of a man is born." Judges and doctors, he said, alike were occupied in searching for the truth, and in his own case he sometimes found it hard to discover; as, for example, when, in a motor-car accident the usual dilemma was reached, and reached through evidence, that each car had throughout been on its own side of the road, that each car had been under perfect control, and that each car had been stationary for an appreciable time before the collision occurred. Sir Henry concluded by pointing out the gain to society of professional associations, and the certainty that the sense of corporate responsibility and of trusteeship, engendered by them, would develop. In this development of trusteeship the value of tradition would have full play, and, while society as a whole might be on the threshold of fundamental changes, medicine would be safe because of the general recognition of the beneficence of medical aims.

The PRESIDENT, in reply, compared the position of the Medical Society of London, standing without the Royal Society of Medicine, to the position of England, a homogeneous country, and of America, an amalgamation of well-nigh 50 States. He gave his reasons for thinking that the Medical Society had done well in preserving its individuality, and called attention to three particular features by which it was distinguished. First, he said, it possessed a library which housed a unique collection of manuscripts, and of these a proper display had now been made possible by the work of Dr. A. F. Voelcker, the librarian, and Mr. Haines Carter, the secretary of the Society. Secondly, the Society conducted its business with no sectional divisions—its scientific voice was one and undivided. And with regard to the tendency to specialism, indicated by the treatment of disease under sections, Dr. Carr wondered who, when the whole of pathology had been regionally allotted to various specialists, was going to give a general medical opinion, and who was going to educate and examine students on general lines. Thirdly, he said he would refer to what was supposed to be a mediæval characteristic of the Society—namely, that membership was exclusively confined to males—to him a singular situation seeing that, through his official position, he had been instrumental probably in passing into the medical profession so many of the women who might have become members. He admitted that a plebiscite of the Society had recommended their admission, but the inactivity of the council in the matter had met with no protest. Dr. Carr closed his speech by referring to the financial condition of the Society, which, he said, was a very good one, for they had bought their freehold and had every reason to believe that as long as London was an Imperial capital their property would not depreciate. But he suggested that there was room for donations and that immortality could be earned by wiping out the Society's debts.

Mr. WARREN LOW proposed the Health of the Guests, and commenced by stating that the Society had inherited the tradition of hospitality from its founder. Among those whom they welcomed that night, he said, were the Master of the Apothecaries Society, the Presidents of the British Medical Association, the Royal Society of Medicine, the Chelsea Clinical Society, and the Hunterian Society, and the Editors of *The Lancet* and the *British Medical Journal*. Journalism, he said, had now become one of the great professions, and, while the Church made money out of the sins of society, medicine out of its diseases, law out of its misfortunes, journalism, it seemed, throve on its indiscretions. He regretted, however, the place that popular medicine appeared to be trying to play in lay papers, where the life work of a respectable organ like the spleen was trying to replace the details of a divorce case, to which publicity was now refused. He coupled with the toast the names of Lord RIDDELL and Sir EWEN MACLEAN, both of whom replied briefly.

Public Health Services.

INFLUENZA.

THE epidemic is now definitely declining in Manchester and other Lancashire towns, as well as in Liverpool and Cheshire; it is on the wane in most districts of London as well as at Portsmouth. But influenza is still widely prevalent in the North of England, the Yorkshire towns, and the Midlands generally, as well as in some parts of Wales. The epidemic is stated to be at its height at Newport, Isle of Wight; Shropshire is the only locality where it is reported to be on the increase. Nearly all localities report a mild type of the disease, but an increase in pneumonia is noted in some of the Lancashire and Yorkshire towns. In the week ended March 9th the mortality-rate from all causes rose to 41·8 per 1000 in Sheffield and 46·6 in Birmingham, the latter figure being the highest ever recorded in the city.

Abroad a marked increase of the general death-rate and of deaths attributed to influenza occurred in the Rhine area. Towns which normally have a very low mortality are now reporting death-rates as high as 32 in Cologne and 36 in Elberfeld and Barmen. The fall in the death-rates following the decline of the epidemic in Northern Germany, as well as in the Scandinavian countries, has been delayed by the extreme cold which persisted in February. The epidemic seems to be gaining new territory in some of the Baltic districts, the death-rate for Königsberg having gone up to 28. The epidemic, which is mild in character, is extending eastwards in Czecho-Slovakia and Hungary, though now decreasing

in the western parts of these countries. Wurtemberg, Southern Bavaria, and Switzerland are so far little affected. From Denmark comes the news that influenza, although decreasing in the towns, is still increasing in remote rural districts. In Spain the death-rate is still high in certain towns, but the epidemic is now generally on the wane. In Iceland the epidemic reached its maximum at Reykjavik during the week ending Feb. 16th and then declined rapidly. In Madagascar influenza is epidemic at Tamatave and in various inland provinces, but is causing only a few deaths.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 2ND, 1929.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 288; scarlet fever, 1958; diphtheria, 1114; enteric fever, 26; pneumonia, 5874 (last week, 4451); puerperal fever, 51; puerperal pyrexia, 146; cerebro-spinal fever, 13; acute poliomyelitis, 8; acute polio-encephalitis, 3; encephalitis lethargica, 23; dysentery, 5; ophthalmia neonatorum, 83. No case of cholera, plague, or typhus fever was notified during the week.

Notifications of pneumonia have again risen considerably, the figures for the last six weeks being 1864, 2422, 3511, 3898, 3658, and 4451. Counties reporting the largest number of cases of pneumonia are as follows: London, 460 (last week 554); Chester, 148 (155); Derby, 106 (53); Durham, 345 (244); Essex, 153 (128); Kent, 130 (92); Lancaster, 862 (783); Leicester, 90 (52); Middlesex, 180 (189); Northumberland, 211 (167); Stafford, 462 (209); Surrey, 14 7(78); Warwick, 552 (313); Yorks, West Riding, 921 (597)—the North and the Midlands contributing most of the increase.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on March 5th–6th was as follows: Small-pox, 41 under treatment, 2 under observation; scarlet fever, 1716; diphtheria, 1912; enteric fever, 10; measles, 65; whooping-cough, 1057; puerperal fever, 15 (plus 4 babies); encephalitis lethargica, 79; poliomyelitis, 8; "other diseases," 63. At St. Margaret's Hospital there were 7 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns including London there was no death from small-pox, 3 (0) from enteric fever, 94 (4) from measles, 17 (4) from scarlet fever, 275 (86) from whooping-cough, 48 (4) from diphtheria, 60 (14) from diarrhœa and enteritis under two years, and 2183 (424) from influenza. The figures in parentheses are those for London itself.

The number of deaths from influenza during the previous eight weeks was 99, 122, 179, 321, 652, 987, 1243, and 1764 respectively, the figures for London during the same weeks being 18, 34, 39, 77, 198, 331, 393, and 473. In the week under review deaths were attributable to influenza in Birmingham, 229; Leeds, 139; Sheffield, 74; Stoke-on-Trent, 73; Manchester, 71; Oldham, 57; Leicester, 56; Hull, 45; Sunderland, 37; Bradford, 33; Middlesbrough, 31; Bolton and Newcastle-on-Tyne, each 30. (Glasgow reported only 12, Edinburgh 21, Dublin 19, and Belfast 6.) The figures for the week ended March 2nd to complete the Registrar-General's comparative table of influenza death-rates (printed last week but one) are as follows: Aggregate, 5·78; North, 6·26; Midland, 7·57; South, 4·52; Wales, 1·87; Greater London, 5·04; Birmingham and Liverpool each reported 13 deaths from measles, Sunderland and Cardiff each 7. Deaths from whooping-cough are still widely distributed, the highest figures coming from Bolton and Manchester, each 13; Salford, 12; West Ham and Oldham, each 11; Leeds, 10. No great town has more than 8 deaths to report from diarrhœa.

The number of stillbirths registered during the week was 289 (corresponding to a rate of 43 per thousand births) including 45 in London.

The Registrar-General continues his instructive table showing the number of deaths, especially among old people, from influenza and from respiratory and circulatory diseases in London during the recent severe weather. The supplementary figures (namely, 424, 212; 828, 405; 634, 463) are with the exception of the last all considerably lower than in the preceding week.

Correspondence.

"Audi alteram partem."

THE INJECTION TREATMENT OF VARICOSE VEINS.

To the Editor of THE LANCET.

SIR,—In replying to Prof. Archibald Young's letter I am not a little embarrassed by the fact that my recent Hunterian lecture has yet to appear in your columns. But since your annotation on this lecture has led Prof. Young to such a denunciation of injection methods, I feel it is necessary to answer his charges. The charges levelled against injection treatment are as follows. It is too simple; it is carried out without any or sufficient justification; it is unscientific, therefore unsurgical; the risk of fatal and non-fatal complications is greater than is generally admitted; there are many failures of the method; and, finally, it is not as effective as operation in cases that really require treatment. The very diversity of these charges makes it difficult to believe that the subject has been approached in a detached or critical spirit, and certain of the charges themselves suggest that criticism has been clouded by prejudice.

The only virtue conceded to injection treatment is its simplicity, and this virtue Prof. Young at once converts into a vice in that it may tempt the inefficient to carry out the method. That this simplicity may *conceivably* lead to abuses I admitted in my lecture, but to employ such a type of argument against a new therapeutic measure is paltry. If radium treatment should eventually prove superior to operation in the treatment of carcinoma of the breast, it would be unjustifiable to argue that it should be denied because it is technically simpler than the standard operative procedure. The temptations which lie in wait for the inefficient are not confined to injection treatment.

Secondly, to make the charge that a therapeutic measure *may* be used without any, or sufficient, justification, is to attempt by totally irrelevant means to obscure the issue as to the exact value of that measure. Such charges might be made against many established therapeutic methods, but they do not in themselves detract from the true value of those methods, but are rather reflections on the weakness and cupidity of certain individuals. Prof. Young suggests that treatment given with insufficient justification has gone to swell the statistics, but in a disorder which is fundamentally progressive patients are, as a rule, unwilling to undergo, or surgeons to advocate, operation at a comparatively early stage. At a late stage few surgeons will advise operative treatment. In my own series of over 200 cases more than 50 per cent. were considered inoperable either on account of age, general condition, or owing to the presence of ulcers or dermatitis; 40 per cent. were considered suitable cases for operation; and only 10 per cent. could be classed as early ones—that is, cases in which the surgeon would not advocate and the patient would not willingly accede to operation. Surely from the point of view of rational therapy these early cases are the ideal ones to get before symptoms are severe and before complications have arisen. The preponderance of the other groups is a witness to the failure of operative treatment to deal at all adequately with the situation.

Prof. Young's third contention is that injection treatment is unscientific and therefore unsurgical. His letter does not contain one single argument in support of this statement. If, as I suppose, it is based on the assumption that the production of intravenous thrombosis is necessarily unsound, it is certainly fallacious. What happens in the ordinary ligature and excision operation on varicose veins? The answer is that thrombosis occurs in the blind

ligatured stump of the vein; this thrombosis is mainly due to the stagnation of the contained blood, and for this reason is much more likely to be lightly adherent than when it occurs secondarily to endothelial damage. It is from this stagnation thrombus that pulmonary emboli occur after operative measures.

Fourthly, statistics show that as far as the risk to the patient is concerned it is certain that the chance of embolus occurring after injection treatment is many times more remote than in cases which have undergone the various forms of operation. In any operation involving the ligature of a varicose vein the danger of embolus is never entirely absent, and the incidence is higher than the general incidence of post-operative emboli. If the theoretical danger of pulmonary emboli is to deter us from the treatment of varicose veins, the danger must be given much greater consideration in discussing operative than in discussing injection treatment.

Fifthly, the failures of injection treatment are mustered against the method. The method is new, its employment has been largely experimental, and its technique often halting, and I do not doubt that there have been failures. In my own experience, and I know this is confirmed by that of many others, I have yet to see a case in which I failed to achieve thrombosis and sclerosis of the veins with corresponding relief of symptoms. Failure in this respect is certainly due to faulty technique. Similarly, with proper technique, the local lesions which are sometimes seen, can be reduced to negligible proportions. Applying similar arguments to operative methods, it will be admitted that failure is not unheard of and sepsis not unknown.

Sixthly, Prof. Young calls in question the efficiency of the method in cases which he considers really require treatment. Clinical experience of injection treatment shows here that the functional results obtained are as good as those obtained from ideal operations, and cosmetically much better, to say nothing of the fact that the treatment has been ambulatory.

I will conclude by quoting the sentences from the annotation to which Prof. Young has taken exception.

> This treatment is so simple, so effective, that it has ousted almost completely the treatment by operation . . . on the whole, it can be said that the injection methods now generally adopted are suitable for routine use. The risk is less than operation and the results are better.

The facts as here stated are strictly accurate and based on experience, and since surgery is a practical art, they are not likely to be gainsaid by purely theoretical considerations.

I am, Sir, yours faithfully.

Harley-street, W., March 6th. REGINALD T. PAYNE.

To the Editor of THE LANCET.

SIR,—Everyone with any extensive first-hand experience of the actual operation of the "injection" of varicose veins, and of its results, will unhesitatingly support Dr. Christopher Howard and Sir Sidney Alexander in their disposal of Prof. Archibald Young's objections to that treatment.

To the category of otherwise healthy patients suitable for the injection treatment—viz., those who unshakably (and I think very reasonably) connect their pain, fatigue, discomfort, and unsightliness with their leg varicose veins, whether these be very varicose or not; and those with varicose ulcers; and those (not few) whose varicose veins have recurred after one, or more, excision-operation; and those, often quite young men and women, rejected for some service or other on account of varicose veins, though, as often happens, these veins had so far caused no discomfort or disability; I would add, also from my own practice, one more, "not otherwise healthy"—viz., those middle-aged or even old patients whose activities are curtailed and life made uncomfortable by reason of varicose veins, but whose age and general state of health—e.g., more or less chronic bronchitis—have made, or will make, the surgeon refuse them a general anæsthetic and excision-operation. They can safely be cured of varicose veins by the injection treatment, given cautiously with fewer injections at a sitting and longer intervals between sittings. Their own opinion is that almost a new lease of life is thereby given them.

In fact, with the growing confidence of doctors and public in the treatment and its results, all but one of the above types of varicose vein patients will become rare, instead of as now, common; for the practice of early injection of varicose veins so soon as they appear will become universal. This, however, will often mean injection of quite small varicose veins in "quite young girls"—to Prof. Young's dismay.

I am, Sir, yours faithfully,

H. M. HANSCHELL.

Weymouth-street, W., March 9th, 1929.

SPINAL ANÆSTHESIA IN ABDOMINAL SURGERY.

To the Editor of THE LANCET.

SIR,—A hasty statement of mine in your issue of Feb. 16th concerning the action of gravity and "diffusion" was severely criticised by Prof. Pannett, and as I clearly recognised that the wording was both unscientific and calculated to mislead, I thought that in the circumstances the most graceful, if perhaps not the most sensible thing to do, was to publish an admission of error in your following issue. But I find that Mr. Percival Cole (same issue, p. 468) is so obviously of the same opinion as myself as to the clinical findings and makes the same mistake in the unscientific use of the word "diffusion" that I make no apology for re-entering the discussion and offering what I believe to be the correct solution of the problem.

I am still of the opinion that gravity being a constant is the least important factor in this discussion, and there is no better way of describing the probable progress of novocaine in the theca than by saying that there is a progressively slow downward "diffusion" of novocaine until it comes to a natural extinction by absorption at a certain level proportional to dosage. Referring to the glass-tube experiment, Prof. Pannett states that these results cannot be applied to the human body and gives as his reason the obstructions which the solution encounters in its downward course. He misses altogether the prime factor which differentiates this experiment from a similar one in the body—viz., the rapid absorption by the tissues of the novocaine and the resulting progressive diminution in the specific gravity of the descending fluid. Referring to the body, he states (your issue of Feb. 9th, p. 276):—

> "There is no danger at all of the solution flowing up too high and causing dangerous paralysis. There are large margins of safety in the small size and small dose of novocaine solution and in the fact that the anæsthetic is quickly diminished in strength as it trickles upwards, partly because it becomes fixed by the nerve-roots, partly because of the rapid absorption which takes place from the spinal canal."

If he will allow me I will paraphrase this statement and add considerable meaning to it:—

> When the solution is injected owing to rapid dilution and absorption of novocaine, there is a progressive diminution in the specific gravity of the descending fluid, this results in a progressive retardation of the descent and a consequent increased opportunity for novocaine to be absorbed, until the specific gravity of the advancing column so nearly approaches that of the cerebro-spinal fluid that stasis results in the complete absorption of novocaine at a constant level proportional to dosage.

It will be noted that Prof. Pannett makes use of the expression "trickles upwards." It was in response to this invitation and in opposition to this conception that I left the rigid confines of physical science and used the term "diffusion." Gravity then, although its action is obvious in the early stage as shown by its

immediate effect on the underside in the lateral position, progressively loses its hold on the descending solution and will never take us to the required level unless the dose is adequate to stay the course.

I therefore offer the following theory for criticism. The accomplishment of spinal analgesia falls into three natural divisions:—

1. Block across the *lower lumbar and sacral* nerves for short operations on the perineum, &c.

Interval—the lowest—small dose 5–10 cg.

2. Block across the *root of the cauda equina*, thence involving the roots of the first lumbar and lower thoracic nerves, for operations on the legs, testis, and lower abdomen. For both these divisions no postural arrangement of the body is necessary, the patient lying horizontal, but slight inclination of the body favours paralysis of the upper segments of the rectus muscle. For unilateral operations reinforcement can be obtained by placing the patient on the affected side and keeping him thus during the induction period.

Interval L 1, L 2, average dose 10–12 cg.

3. *Splanchnic* block—up to the fourth thoracic nerve-roots and a little beyond. This requires an inclination of the body sufficient to overcome the dorsal curve, the actual angle being unimportant provided that this condition is fulfilled, though it ought not to be excessive. The level reached is dependent upon the amount of the dose used; this amount should be proportional to the probable size and therefore absorptive power of the nerve-roots in an individual case. Every dose owing to rapid dilution, absorption, progressive diminution in specific gravity, retardation of descent, increased opportunity for absorption, ultimately attains stasis and the novocaine is completely absorbed at a level proportional to the amount of the dose.

Interval L 1, L 2. Dose, 10–12 cg.; in some big men more. In the event of partial failure a second dose is administered, the amount of such dose to be proportional to the deficiency of the result.

No amount of inclination will bring a small dose to a high level, except in the case of a secondary dose, because previous saturation favours its progress. "Barbotage" results in distributing novocaine below the site of an intended block and should never be used. The above theory is not only in accordance with all clinical findings, but in my opinion reconciles the conflicting views recently expressed in your columns.—I am, Sir, yours faithfully.

W. HOWARD JONES, M.B., B.S. Lond.,
Surgeon Anæsthetist to Charing Cross Hospital.

March 11th, 1929.

To the Editor of THE LANCET.

SIR,—Your correspondents have raised the question of the spread of fluid in the spinal theca. The Saccharine Corporation and MM. Poulenc Frères were so obliging some years ago as to carry out at my suggestion experiments in regard to the density and diffusibility of solutions employed for spinal injection. According to the reports, which I shall be pleased to send to anyone interested, diffusion was extremely slow and may be in practice disregarded. Gravity may come into play to some extent, even if a light solution is used (the 10 per cent. stovaine in saline is often supposed to be as light as the cerebro-spinal fluid), but the fact is, that experiments tell us very little of what happens in the living subject, for various physical, anatomical, and physiological complications are added; and one may depend upon the practical result, which is, in my experience and that of many others, that a patient may be put into the Trendelenburg position as soon as an injection of stovaine in saline has been given.

I am, Sir, yours faithfully,

London, N.W., March 8th, 1929. J. D. MORTIMER.

TONSILLECTOMY IN CHRONIC ARTHRITIS.

To the Editor of THE LANCET.

SIR,—It is rather surprising that Mr. Pavey-Smith should now state that the figures of his hospital admissions from which I drew certain conclusions, were "rhetorical," as the sentence in his original paper seems plain enough: "During the time that these 200 patients were dealt with *over* 7000 cases of many and various forms of arthritis and allied conditions passed through the hospital" (my italics). Mr. Pavey-Smith now desires to cancel the 7000 and to substitute instead accurate numbers of the various conditions with which he is dealing. This is certainly more satisfactory.

Mr. Pavey-Smith gives 2333 cases of all forms of arthritis admitted. Analysing these one finds that roughly 20 per cent. of acute and subacute rheumatism show tonsillar sepsis, but that in other forms of infective arthritis only 8 per cent. were subjected to operation, 1 per cent. being cured and 4 per cent. obtaining benefit. In one only of some hundreds of cases of osteo-arthritis did the condition of the tonsils warrant interference. With these more exact figures one still finds that in arthritis, with the exception of rheumatic fever, tonsillar infection plays but a very small part. I should like to congratulate Mr. Pavey-Smith on his conservative policy when dealing with this disease.

I am, Sir, yours faithfully,

London, W., March 5th, 1929. H. WARREN CROWE.

OPERATING FOR APPENDICITIS.

To the Editor of THE LANCET.

SIR,—In reply to Prof. Grey Turner, may I endeavour to clear up one or two apparently doubtful points? In the first place, the cases from which these statistics were compiled were divided into cases operated upon while infection was still confined to the appendix, and "the remainder," which included local abscess, local and general peritonitis. In estimating the ultimate mortality, some slight allowance must admittedly be made for the risk of interval removal, but if sufficient time (about three months), is allowed for infection to subside, then this added risk should be almost negligible.

In my lecture, I dwelt on the possibility of refusal of the patient to undergo interval appendicectomy after expectant treatment had tided him over the crisis, but I believe it is exceptional for subsequent operation to be refused—the memory of recent illness and the fear of recurrence are too vivid. At any rate, we must assume that patients are more or less reasonable, and according to our beliefs, endeavour to pilot them through an illness with the minimum of risk, in the hope that they will continue to follow our advice, and the arguments for interval appendicectomy are certainly clear and weighty.

I heartily applaud Prof. Grey Turner's condemnation of Battle's incision. I purposely refrained from mentioning it, as the sooner it falls into oblivion the better it will be for abdominal walls. I am not conversant with Rutherford Morison's "oblique muscle-cutting incision," but, personally speaking, its strongest recommendation would be to know that Prof. Grey Turner uses it himself.

Mr. Davies-Colley raises one or two points to which I should like to refer, particularly in connexion with operation when infection is localised to the right iliac fossa. Ignoring the high mortality of interfering in localising cases between the third and fifth days (over 9 per cent.), the risk of complications and sequelæ is considerable. When infection is localised efficient protection of the infected area by packing may require very wide exposure in order to avoid breaking down adhesions to the anterior abdominal wall. Infection of this extensive wound, which commonly occurs, is prone to result in incisional hernia. As Mr. Davies-Colley suggests, anxiety to leave structures in situ may prohibit closure of the appendix stump, and as drainage is usually required, the formation of a fæcal fistula is encouraged. When once localisation has occurred, general peritonitis is only likely to follow if a subsequent abscess

ruptures into the peritoneal cavity, provided that the patient is treated on established lines. As stated in my lecture, if an abscess forms and increases in size, then drainage is indicated with a view to obviate this risk, and also to shorten convalescence.

I cannot understand Mr. Davies-Colley's query, "Why drain the pelvis for an infection limited to the iliac fossa?" The point stressed was that *if* pelvic drainage was necessary it should be obtained by a separate suprapubic incision rather than through the original gridiron incision. When infection is localised to the right iliac fossa, if an appendicectomy has been attempted, then a stab wound in the loin provides direct and dependent drainage.

Mr. Hamilton Whiteford refers to the risk of mistaken diagnosis. I agree that when doubt exists, then expectant treatment is unwise; but when infection is limited to the right iliac fossa, and the other three abdominal quadrants appear normal, then the risk of an error in diagnosis is slight, and it is particularly in these localising cases that expectant treatment is advocated. The only two errors of diagnosis which I have personally seen were a volvulus of the cæcum and a twisted ovarian cyst. Both of these cases survived, in spite of a short period of expectant treatment, and I believe that a more careful clinical examination would have resulted in a correct diagnosis.

I am, Sir, yours faithfully,
R. J. McNEILL LOVE.

Harley-street, W., March 12th, 1929.

MEDIÆVAL TOWNS AND SPAS OF GERMANY.

To the Editor of THE LANCET.

SIR,—Attention was drawn in THE LANCET by a news paragraph, which appeared in your issue of Feb. 2nd, to a projected tour at Whitsuntide to the mediæval towns and spas of Germany. This tour I was organising upon the lines of previous expeditions to Czecho-Slovakia and Yugoslavia, and was aiming at having again between 20 and 30 participants. After the appearance of the notice in THE LANCET, a number of doctors wrote to me for details but have not yet decided to go. May I point out that, if the number of acceptances by the end of March falls short of 20, the tour cannot take place, as the agency in whose hands the management lies cannot for any smaller number make the proper and economical arrangements either at hotels or in trains. Prospective travellers should send a deposit of £15 to me at the Bath Club, 34, Dover-street, London, W.1, which will be immediately returned if the numbers still fall short of twenty by March 31st.

I am, Sir, yours faithfully,
HENRY BAERLEIN.

Bath Club, London, W., March 8th, 1929.

PRESENTATION TO A SURGEON.—Mr. A. W. Nuthall, who was elected surgeon to the Birmingham Children's Hospital in 1904, has just retired under the rules of the hospital after 25 years' service. In recognition of his work he has been appointed an honorary consulting surgeon and presented with a chiming grandfather clock and a drawing-room lamp; a diamond and sapphire ring has been given to Mrs. Nuthall.

IMMUNISATION AGAINST DIPHTHERA IN MANCHESTER.—At the last meeting of the Manchester City Council it was proposed that the medical representatives of the corporation should call meetings both of teachers and of parents and explain to them the advantages of immunisation. Under the scheme sanctioned in June last the education committee was empowered to undertake the prevention of diphtheria by immunisation by the Schick toxoid antitoxin method. At ten of the welfare centres the work is already in progress. Though the treatment has only been available for about six months over 1000 injections have been performed and there has not been any complaint of undesirable after-effects. In some districts the great majority of parents attending certain centres have had their children immunised, and at other centres parents are adopting the idea more slowly.

Obituary.

CLIVE RIVIERE, M.D., F.R.C.P. LOND.

Dr. Riviere, who died at his house in Queen Anne-street on March 6th, was the second son of Briton Riviere, and although he had only recently developed a latent aptitude for water-colour painting, the artistic temperament which he inherited showed itself in every aspect of his work. His bent towards clinical medicine dated from the time when he was house physician at St. Bartholomew's Hospital to Lauder Brunton, the one member of the medical staff at that time who was deeply concerned with the technique of scientific treatment, and when he was clinical assistant to Howard Marsh in the throat department. There followed the usual period of attendance in the "morning surgery" as casualty physician whose task it was to pick out from a mixed mass of suffering humanity the acute and interesting cases, and Riviere became chief assistant in the newly created children's department of the hospital; but he did not stay at Bart.'s, where the prospect of promotion on the medical side then seemed remote, and in 1902 he was appointed out-patient physician at the Victoria Park Hospital, gaining charge of beds in 1916.

DR. CLIVE RIVIERE.
Photograph by Elliott and Fry.

Throughout the 27 years of his career there, as one of his colleagues testifies, he worked hard and unselfishly for the hospital's welfare and was always ready to take on any task asked of him. He was there revealed as a clinical physician who had matured slowly. There was no sparkle or superficial brilliance about his work; he went about it with steady purpose which declined to be put out by hurry or mishap. Joining the staff about the dawn of the tuberculin era, he took an active part in the research which this new remedy entailed and collaborated in a book which still counts as the best treatise in English on tuberculin treatment. That work led him in turn into the field of early diagnosis in tuberculosis, a subject which was then much to the fore as a result of the creation of the dispensary system. Finally the introduction of treatment by artificial pneumothorax into this country by Lillingston and Vere Pearson brought out the best in him. Realising almost intuitively its possibilities Riviere soon became a pioneer and exponent of its technique. His light touch,—for percussion was to him a fine art,—his skilled fingers, and a certain quiet sureness of manipulation, combined to give him a technique which was well-nigh perfect. To these qualities time and experience added a fine clinical judgment, and wherever there was a difficult pulmonary case in hospital his advice was gladly sought by his colleagues. To the new major operations on the chest,

thoracoplasty, and the like, he brought the same mental balance. His opinion, given after much thought, was always sane and free from panic, for he was the least dramatic of men.

Riviere's published writings contain the same elements of success as did his clinical work. The first edition of each of three little volumes issued by the Oxford Medical Publications was soon exhausted and one or more reprints called for by grateful readers. In each case the love of detail and the sense of style which are both clearly visible are subordinated to the purpose of the whole, and the reader does not fail to get a perspective of the subject before him. He never wrote readily, but the third book of the series, on pneumothorax, is a bright example in modern medical writing of a whole which is greater than the sum of its parts.

In his relations with members of his own profession Riviere was happy. The courtesy and obvious sincerity of his motives kept him free from bias in hospital politics, and his sense of fitness saved him from harsh judgments. He disliked show and cheapness in anything, and his love of beauty and skill in art brought out in him a desire for high quality and personal worth. It was this personal worth which endeared him to those who worked with him. "I was greatly struck," writes a surgeon whom he attended professionally, "by the care and thoroughness with which he did his work, by his extraordinary kindness and sympathy, and by the encouragement he gave. During the past 12 years I have had occasion to consult him many times; he was always the same. It is due to his advice and treatment that I regained my health. During the last long illness of one of my family Dr. Riviere came to see him again and again, and did more than I thought possible to relieve his suffering and render his last days tolerable."

The same temperament created an atmosphere of welcome in his home and made him in request where any large scheme of public hospitality was in question. He was joint honorary secretary of the International Medical Congresses held at Lisbon in 1906 and at Budapest in 1909, but the 1913 Congress in London gave him his opportunity as hon. secretary of the Reception Committee; and none of those who attended the enormously successful function at the Natural History Museum, where Mrs. Riviere and he were responsible for the decorations and entertainment, will ever forget their debt. Riviere's charm was heightened by the fact that he held no high opinion of his own qualities or attainments; even among his intimates he only rarely emerged from a kind of constitutional shyness, and his diffidence in impressing his own opinion on others made it impossible for him to make an enemy.

He was only 56 years old when he died at the end of a week's illness from pneumonia, which came as an overwhelming infection from the start, and he leaves the stage at the moment when his powers were at their highest and best.

HENRY ROXBURGH FULLER, M.V.O., M.D. CAMB.

THE death of Dr. Roxburgh Fuller on March 7th brings to an end an extremely long medical connexion with Mayfair. His great-grandfather, John Fuller, is stated to have come up from Dorking to London in about 1767 to study at St. George's Hospital. He practised as an apothecary in Piccadilly, and among his patients was "Old Q," the eccentric William Douglas, fourth Duke of Queensbury. A very interesting account of the famous lawsuit between the executors of "Old Q" and John Fuller is told in a book entitled "Old Q and the Apothecary," by the son of Dr. Roxburgh Fuller, which was printed some years ago. The lawsuit was of the greatest importance to the medical profession, for a direct outcome of it was the passing of the Apothecaries Act of 1815, which settled the legal status of the general practitioner. The lawsuit was the result of Old Q's refusal to be bothered to pay Fuller's fees for his attendance during the last seven years of his life. Fuller was told not to trouble him with accounts, but to recover his charges from the executors, as there would be plenty of money to pay all bills. On Old Q's death Fuller submitted an account of £12,000. The executors did not consider this sum excessive, but thought that it would be best for the case to be brought before the courts, as at that time an apothecary could only charge for the medicines and appliances supplied and not for his attendance. The friendly action resulted in Fuller receiving a sum of £7500. John Fuller died in 1818 and was succeeded in the practice by his son, Henry Peter Fuller, who was a benefactor to St. George's Hospital, and after whom the Fuller ward in that institution is named. He was visiting apothecary to the hospital for many years, as were his son and grandson. He died in 1866, aged 81. To him succeeded his son William Fuller, who took as partner the late F. B. Manley Sims, and shortly before William Fuller's death the subject of this notice joined the firm.

Henry Roxburgh Fuller was born in 1855. He was the son of Dr. H. W. Fuller, physician to St. George's Hospital, and his wife, Emma, daughter of David Roxburgh. He was educated at Eton and Caius College, Cambridge, and received his medical training at St. George's Hospital, where he was house surgeon and resident obstetric assistant. He took the M.B. in 1883, and in the following year joined his uncle and Manley Sims in the historic family practice. In 1886 he proceeded to the M.D. Camb. For some years he was physician-accoucheur to the St. George's (Hanover-square) Dispensary, and as already stated visiting apothecary to St. George's Hospital. Among his patients was H.R.H. the late Duke of Cambridge. The house in Piccadilly, where the Fullers had for so long practised, was pulled down some 40 years ago, and Roxburgh Fuller removed to Curzon-street, where he practised until his retirement.

MUCH regret is felt in Dublin at the death, at the early age of 27, of ANDREW RICHARD JOSEPH DUNGAN, M.D., lecturer in medical jurisprudence in University College, and pathologist to the Mater Misericordiæ Hospital. Having taken his medical degrees at the National University of Ireland in 1923, Dr. Dungan spent some time in America doing research work in biochemistry, and he subsequently studied at Vienna. Since his return to Dublin he had engaged in research work in pathology and biochemistry, and had made several valuable communications to the Royal Academy of Medicine in Ireland, of which he was a Fellow. His communications were marked by thoroughness, originality, and clearness. He was regarded as a young man of great ability and promise, and his early death is a serious loss to the Dublin School of Medicine. Personally he was held in great affection by his friends and colleagues.

Dr. JOHN NOBLE, one of the best-known practitioners in the Birkenhead district, where he had been in practice for over thirty years, died at his home at Rock Ferry on March 2nd at the age of 67. An Edinburgh man, he studied at the University there and graduated M.B. and C.M. in 1884. In 1907 he went to Birkenhead as partner of the late Dr. Robson, of Rock Ferry, subsequently succeeding to the practice. He was a keen sportsman and promoter of outdoor sports, and did much to stimulate bowling and cricket clubs in the district. During the war he was in charge of the Abbotsford Hospital at Rock Ferry and received the M.B.E. in recognition of his services. For many years he was medical officer of the school ship *Conway*, which is moored in the Mersey. Dr. Noble leaves a widow and two sons.

THE death of Dr. WILLIAM HENRY GRIFFITH, of Chester, occurred on March 8th, in his sixty-first year. Born at Meliden, North Wales, he was educated

at Menai Bridge Grammar School and at Bangor. Proceeding to Edinburgh, he studied medicine in the extra-mural school, at the old Minto House, and College of Surgeons, qualifying as L.R.C.P. and L.R.C.S. in 1894. For a short time he practised at Prestatyn and was a member of the first urban council there. He went to Chester about 29 years ago and was a member of the Chester Council for 26 years, being elected alderman in 1921, when he also filled the office of mayor. Dr. and Mrs. Griffith lost their daughter, an only child, about six weeks ago.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Local Government (Scotland) Bill.

The Report stage of the Local Government (Scotland) Bill was concluded in the House of Commons on Wednesday, March 6th.

Mr. Hardie moved to omit Clause 68, which provides that "if any difficulty arises in bringing into operation any of the provisions of this Act the Secretary of State may by Order remove the difficulty, or do any other thing which appears to him necessary or expedient for bringing the said provisions into operation."

Sir John Gilmour (Secretary for Scotland) said that he had several amendments to the clause on the paper which would bring it into conformity with that of the English Bill. He agreed that it would be very undesirable that the powers of the Secretary of State should be so expanded as to become an instrument in the hands of the Minister or officials of his department to defeat the considered and determined view of Parliament. But some discretionary power must be left to the Minister.

At a later stage Sir John Gilmour moved the amendments to which he had referred, the effect of which was to make the first two subsections of the clause read as follows:

(1) If any difficulty arises in bringing into operation any of the provisions of this Act, the Secretary of State may make such Order for removing the difficulty as he may judge necessary for that purpose, and any such Order may modify the provisions of this Act so far as may appear to the Secretary of State necessary for carrying the Order into effect:

(2) The Secretary of State may make any adaptations or modifications of the provisions of any Act necessary to bring those provisions into conformity with the provisions of this Act.

The clause was also amended to provide that an Order should not be made after Dec. 31st, 1931.

On the conclusion of the report stage the Bill was recommitted, and on the motion of Major Elliot (Under Secretary for Scotland) a new clause was added to the Bill enabling the pension of a sick person under treatment in a poor-law institution to be continued without limit of time.

A second new clause which was added to the Bill read as follows:—

It shall be lawful for any county council or for the town council of a large burgh to incur expenditure in making contributions to the central council or committee of an organisation approved by the Department of Health which provides services of the nature of publicity or educational propaganda for any purpose relating to public health, or in the provision by themselves of such services.

The Third Reading Debate.

In the House of Commons on Monday, March 11th, Sir John Gilmour (Secretary for Scotland), in moving the third reading of the Local Government (Scotland) Bill, said that with the very best intentions many of the existing local authorities had been incapable of meeting the problems connected with housing and public health matters adequately. Unless there was a coördination of effort there would be wastage and inefficiency. In Glasgow, for instance, he did not see that measure of coördination and coöperation between either the private hospitals or the private hospitals and the public hospitals which was essential if there was to be real efficiency. The provisions of this Bill held out, not only the hope but, in his judgment, the certainty of a great solution of this problem. They had behind them the whole-hearted coöperation of the managers of the great hospitals and of the members of the medical profession who were closely linked with them. In the development of these services he visualised more and more paying wards within the hospitals and the building of annexes in the fresher and purer air of the countryside, to which would be taken at various stages those who first entered the hospitals in the great cities. It was only by complete coördination between the work in the city and the local authorities in the counties outside that they would get a proper solution of this problem. If the Bill had dealt with no other problem than the improvement and coördination of the medical services he would have been proud to have introduced it.

Mr. Johnston, in moving the rejection of the Bill, said that it was with genuine regret that they saw in the measure the disappearance of a training ground for public administration in the form of the small burghs of Scotland. He hoped it would be explained in Scotland that the Government were giving no relief for hospitals, but were giving relief for distilleries; that treatment of venereal disease would be free, but that maternity treatment would be charged for; and that if an old man who was treated for bronchitis could not pay, his son or daughter could be called on to pay, or, if they could not pay, then his grandson or granddaughter could be obliged to pay.

Dr. Drummond Shiels, in seconding the motion for the rejection of the Bill, denied that the change from the percentage grant system to the block grant system was a step forward in regard to the public health services. He could not get away from the fact that the impulse for this change came from the Treasury and not from any medical or local government source. Any saving to the Treasury in public health development meant heavier local burdens out of depleted resources, and that was one of the bad things in the Bill; even maternity and child welfare could not be saved from it. He was more hopeful about the hospital sections of the Bill than any other part of the Bill. The changes that had been made during the Committee stage, although by no means all that they could have desired, had made some progress possible. The distinction between infectious and other diseases could not be justified, and they could only hope that the local authorities would use their discretion wisely in exercising their powers to enforce payment. Many of the people requiring treatment were already harassed by rent and other obligations; they needed more money when they were ill rather than to incur new penalties. He regretted especially in this connexion that the Government had not seen their way to exclude maternity hospitals. Presumably there would be paying and non-paying wards in the municipal hospitals, just as there were already in many voluntary hospitals. The voluntary hospitals had reluctantly agreed to the new arrangements, but some of their managers and supporters, and certain eminent members of the medical profession, had been voicing their fears of extinction by the municipal hospitals. No one would deny that splendid work which had been done, and was still being done, by the voluntary hospitals. If it was looked at rightly the new development was not a censure on voluntary hospitals, but was a real triumph of their educational work. They had convinced the community that medical and surgical aid must be promptly and fully available to every member of the population. The voluntary system admittedly could not achieve this, and the community therefore must accept the responsibility. For many years to come there would be need of all the resources of both voluntary and municipal hospitals as there was a very big leeway to make up; and even if municipal general hospitals ultimately met a large part of the demand there was still abundant pioneer work for voluntarism to do. The public conscience was still dull in regard to crippled children for example, 75 per cent. of whom could be made self-supporting if they were earlier treated. Yet they were languishing in hospitals and private homes throughout the country, a burden and an unhappiness to themselves, and very often a burden on the community. Mental defectives were still largely untouched by any kind of organisation. Rheumatic children, who became very often permanent invalids, were in many cases without any treatment of any kind, or any opportunity of getting it. It was well known that the blind and deaf were also a class who had not yet received the attention which their condition and need warranted. He hoped, therefore, that no dog-in-the-manger policy would attempt to hamper the new municipal and county efforts to do the barest duty to the community. He hoped that the inquiry to which Sir J. Gilmour had referred would not be of a vexatious kind, and would not be such as to hamper the local authority or to mulct them in great costs in endeavouring to meet the medical needs of their people. He agreed that there were difficulties in regard to the coöperation of the voluntary and municipal hospitals, in regard to staff, medical teaching, and many other matters, but that could be surmounted by a spirit of goodwill, which he trusted would be forthcoming.

Reply to the Debate.

Major Elliot (Under Secretary for Scotland), replying to that debate, said that he had as much knowledge perhaps of the hospitals and their waiting-lists as almost any Member of the House. He had had the compiling of those waiting-lists. He had realised the hope deferred that made the heart sick as week after week and month after month cases came

up asking for treatment where they knew that treatment would be an advantage, but owing to the shortage of accommodation they were forced to deny it. They were going a great way to remedy that situation by the proposals of this Bill. The Mackenzie Committee reported that no fewer than 700 beds of the first class could be made immediately available if accommodation were arrived at between the municipal and poor-law authorities and the voluntary hospitals, and that it would be possible to bring hundreds of beds immediately into service in Glasgow alone. In Aberdeen it had been possible to bring 160 beds into use and keep them constantly filled. They could do that and even more in other cities under this Bill.

The Bill was read the third time by 269 votes to 86.

The Bill was introduced and read a first time in the House of Lords on Tuesday, March 12th.

HOUSE OF LORDS.

WEDNESDAY, MARCH 6TH.

LOCAL GOVERNMENT BILL.

The House went into Committee on the Local Government Bill, the Earl of DONOUGHMORE in the chair.

[The earlier debate on this and the previous day appears on p. 571 of this issue.]

Recovery of Expenses.

On Clause 15, Lord PARMOOR moved to omit the first subsection, which provided for the recovery of the cost of maintenance and treatment in hospitals. He urged that the obligation which the clause imposed upon local authorities was harsh, and that it would prevent the people for whom the hospitals were intended from seeking treatment.

The LORD CHANCELLOR pointed out that the provision of the clause was not that the county council should recover the cost in all cases, but only in those cases where they were reasonably satisfied that the persons liable could afford to pay. He asked their Lordships to reject the amendment.

After further debate Lord PARMOOR withdrew the amendment.

Lord ARNOLD moved an amendment to make the operation of the clause optional instead of compulsory.

The LORD CHANCELLOR said that although the anomalies that would follow as a result of omitting the clause were very great, if this amendment were carried they would be even greater. Payment would be exacted not according to the means of the patients, but according to the generosity of individual councils.

The Marquess of READING thought that it was a pity that the Government should have made the provisions of the clause mandatory.

Lord SEMPILL pointed out that in the Scottish Bill the power to recover was optional, and it passed his comprehension why it should be optional in one measure and compulsory in another.

The LORD CHANCELLOR said he could not see why the clause should be a deterrent to people going for hospital treatment. The Government thought that the right test of the obligation to recover should rest on the ability to pay.

The Bishop of SOUTHWARK and Lord OLIVIER supported the amendment.

The Bishop of WORCESTER thought that public bodies in assessing the sum which was to be paid would only charge what was reasonable.

Viscount KNUTSFORD pointed out that the voluntary hospitals had no power to recover the expenses of treatment. In London alone, however, 500,000 working men subscribed 13*s.* a year so that when they did go into hospital they might be able to pay voluntary contributions. He could not conceive why some such scheme of assurance should not be applied to the new hospitals—namely, that if people went to them for treatment they should pay unless they were already insured persons.

Lord DAWSON said that as he understood the intention of this clause the word "shall" was meant to compel the county council to consider whether if a person was given hospital treatment he was able to pay. If he could not pay it was in their power to relax payment to such extent as they thought fit. By maintaining the word "shall" the Legislature kept control over the question of policy. He thought it was right for the Legislature to retain its power over local authorities. It was well known that there were certain public bodies in this country who believed in free treatment, just as they believed in free education. If free treatment was a right thing—and that was open to argument—it was a policy which should be determined by the Legislature.

The amendment was rejected by 85 votes to 29.

Definition of Infectious Diseases.

Lord ARNOLD moved an amendment which was designed to secure a better definition in the Bill of what were infectious diseases. The clause as drafted was, he said, ambiguous and unsatisfactory. It would be well, he thought, if the Bill definitely stated what were the diseases in respect of which patients, or those liable for their maintenance, would not be liable for payment. They were, for instance, venereal disease, tuberculosis, and cancer. Venereal disease was accepted as an infectious disease. Of tuberculosis there were two kinds, ordinary and surgical. The former might be deemed infectious, but would surgical tuberculosis come within the same category? In no sense, he thought, could cancer be regarded as infectious, but at the same time in the interests of those suffering from cancer, as well as in the interests of the public, they ought to be treated properly and should not be deterred from entering institutions at the earliest possible moment. He hoped that on the Report stage the Government would be able to define exactly what was meant in the clause by infectious disease.

The Earl of ONSLOW said that venereal disease and ordinary tuberculosis would be treated as infectious diseases, but he could not at the moment say whether surgical tuberculosis would come within that category. He would consider before the Report stage whether it would be possible to adopt Lord Arnold's suggestion of including in the Bill a list defining infectious diseases.

Lord DAWSON said he was very grateful to Lord Arnold for raising this matter, for it provided a very fair example, which he hoped would impress the mind of Lord Onslow, of the importance of having doctors who spent their lives looking after curable disease associated in some way with the medical officer of health from the very moment the local authorities undertook these difficult questions. It proved the point he (Lord Dawson) had tried to raise on the previous day. Turning to Lord Arnold's point about tuberculosis, Lord Dawson said that it would be impossible to draw up a list of what the medical profession regarded as infectious diseases, because knowledge was ever growing, and they might put something in the Bill that day and find that they had to bring in an amending Bill next year. The present opinion would certainly be that there were a large number of cases of tuberculosis which were not in any way dangerous to the health of others. They might be very distressing to the children who suffered from them, and to their parents because of the length of the treatment required, but there were many cases of surgical tuberculosis where the danger of the transmission of the disease to others was a very small one. The same might be said with regard to cancer. The prevailing opinion at the moment was that cancer was not an infectious disease. He was afraid that the words "any serious disease" in Lord Arnold's amendment might be made to include the greater part of the diseases which were treated in the hospitals, and therefore they would have the effect, however remote it might be from the intention of the noble Lord, of altering the word "shall" into the word "may." On those grounds he thought that the amendment was impracticable.

The amendment was withdrawn.

Contributions to Maintenance.

Lord COZENS-HARDY moved to insert at the end of subsection (1):—

> "Provided that where there is an association or fund for the support of hospitals or the like any such council or local authority may make agreement with such association or fund that if such association or fund pays to the council or local authority an agreed charge in respect of any inmates entitled to benefits from such association or fund the council or local authority shall not exercise its powers of recovery from such inmate or from any person legally liable for his maintenance. Provided further that the council or local authority shall not so agree to any charge which in its opinion would recover less than the average amount otherwise recoverable from such inmates."

He said that the amendment was intended to help the practical working of those associations with weekly contributions from employers and workmen which had done so much to relieve the financial anxieties of many of the voluntary hospitals. It was usual in those cases to provide that if the contributor was in one of the hospitals concerned no charge should be made for his maintenance, but it was not an infrequent occurrence that a contributor was unable to wait for a bed in a voluntary hospital and had in consequence to go into one of the poor-law institutions; and in such cases it had been found that the contributor certainly expected the fund to repay to him any costs that might have been recovered by the local authority from him for his maintenance. When the poor-law hospitals passed over to the local authorities it was probable, and it was to be hoped, that greater use would be made of them, for the number of these cases was likely to increase. As the Bill stood the local authority was bound to consider the case of each inmate separately—a process which involved the annoyance and the trouble of separate inquiries as to financial circumstances, and a separate collection of a large number of separate charges. The amendment aimed at avoiding all that by empowering the local authority to arrange with the managers of a contributory scheme to collect from the fund a sum equivalent to

that which they would on the average have recovered from the individual contributors.

The Earl of ONSLOW said that the amendment raised a point on which he would not like to offer an opinion without a little further consideration. Therefore he suggested that they should postpone the matter for consideration on the Report stage.

The amendment was withdrawn.

An amendment moved by Lord BALFOUR OF BURLEIGH was agreed to, requiring that town planning schemes should be prepared by Jan. 1st, 1934, or such later date before Dec. 31st, 1938, as the Minister in any case might allow.

THURSDAY, MARCH 7TH.

Supervision of Midwives.

On Clause 57 (Supervision of Midwives), the Earl of HALSBURY moved an amendment to provide that the supervision of midwives should be vested in the county councils instead of in the district councils as provided in the Bill. He said if midwives were put under very small areas their work would certainly take them outside those areas, and they would find themselves under a dual control. The effect would probably be that there would be conflicting rules and regulations made by the two bodies, and the rules regarding disinfection might vary in two different areas. It would therefore be better that they should remain under the larger area. He had read through the part of the Royal Commission's Report dealing with maternity and the question of midwives, and he claimed that his amendment would not be at variance with the findings of the Royal Commission. If the district were that of the local education authority, it would be a district of some size. That undoubtedly would please those who advised the midwives, and who in this matter comprised practically every well-known body concerned with midwifery. The larger the area the broader the view, and the less likelihood of local difficulties being put in the way—such a difficulty as that of a doctor preferring one particular midwife because he was working with her, and employing her to the exclusion of others. Furthermore, it would be much easier to get an experienced inspector for the larger than for the smaller area. They were entitled to look at what had happened in the past. Under the Midwives Act, 1902, there was a power for counties to delegate the inspection of midwives and the general question to a smaller committee. Ten counties adopted that, but after trial every one of them gave it up. In 1909 it was suggested by the Departmental Committee that that delegation to small committees should be given up entirely, and it was repealed by the Midwives Act, 1918. Therefore it was not unreasonable to propose that this suggestion might be considered again before this part of the Bill was passed. He had a further amendment which proposed that if there was any difference between the county council and the district council with regard to a possible Order which might be made by the Minister in accordance with this clause, the Minister should hold a local inquiry into the circumstances.

Lord PARMOOR in supporting the amendment said that transference to the smaller authority would be a mistake. He had before him a document showing that the Incorporated Midwives Institute and every other similar association, was opposed to this provision. The later amendment concerning a local inquiry was a very important safeguard.

Viscount KNUTSFORD said he was authorised to state that the Central Midwives Board and Queen Victoria's Jubilee Nurses objected to this transfer of the powers of the inspection of midwives from the county council to a district council. The Incorporated Midwives Institute and the College of Nursing also opposed it. It was essential to encourage women to join the profession of midwifery. It was not easy to get them, and one thing that would make midwives more happy in their work was that they should feel safe that their supervision should be in the hands of someone who knew how to carry out the duties they had to perform, and the standard they had to work up to. They felt certain they could get better treatment and better supervision from the more important body, the county council, than from a district council.

Lord HUNSDON said that the ladies associated with maternity and child welfare work in Hertfordshire viewed the clause as it stood with something akin to dismay.

The Earl of ONSLOW said the very careful provisions of this clause were based on the recommendations of the Royal Commission. The larger municipal boroughs had felt that they had some cause for displeasure because this duty had been taken away from them. It was to be remembered that under the Act of 1925, which was based upon the first report of the Royal Commission, the size of a county borough was increased from 50,000 to 75,000. Therefore there were a large number of towns approaching the 50,000 limit which would have to wait a long time before there was any hope of their becoming county boroughs. It was to such towns more than others that this particular clause was directed. He did not think it was likely, seeing the careful wording of the clause, that any Minister would transfer the supervision of midwives to any authority unless he was perfectly certain that it would carry out the duties well. The clause was very carefully drawn, and he did not think that the interests of the midwives were likely to be injured by its provisions.

After further debate,

The Earl of ONSLOW said it was clear from the speeches that had been made that there was a great desire for the further consideration of this clause. He suggested, therefore, that they should leave the matter as it stood and allow him to consider with the Minister of Health whether it would be possible to meet the wishes of their Lordships. The matter would be brought up again on the Report stage.

The amendment was withdrawn.

FRIDAY, MARCH 8th.

Discontinuance of Grants.

On Clause 78, Earl BUXTON moved an amendment to exclude grants for maternity and child welfare from the operation of the clause. He said the present system by which a local authority which instituted or enlarged or improved its maternity and child welfare centres received a pound-for-pound grant from the Treasury had proved an enormous stimulus to local authorities. The expenditure on these services had risen in the last few years from £12,000 to over £1,000,000, and the numbers had increased from about 400 to 2634. Under the block grant system proposed by the Bill he thought the local authorities would be discouraged in further extensions and improvements of this important social work.

The Bishop of SOUTHWARK said that this part of the Bill had caused great anxiety among people engaged in maternity and child welfare work. The percentage grant system had worked admirably, and it would be unfortunate to make any change. If the health of the mothers and children was to be properly cared for, there would have to be a great extension of this social work. No doubt many local authorities would encourage the work, but there were others who regarded it with suspicion, and naturally they would be loth to take any steps which would involve increasing their rates.

Lord BUCKMASTER said that the maternal mortality in this country was a disgrace, the ratio compared with that of Holland and Sweden being something like 14 to 2. There was not a medical man who would not tell them that the rate of mortality in childbirth was almost entirely preventible. The reasons for the high rate were ignorance and carelessness. It was only by the continued energetic work of the maternity and child welfare centres that the rate of maternal mortality could be reduced and the health of the children improved. The Bill would rob the good work of its incentive to grow.

The Earl of ONSLOW said they were all agreed on the necessity for maintaining and increasing this important social work, and rendering the centres even more efficient. The amendment would, however, fundamentally alter the Bill, because it would cut into the roots of its financial provisions. It would destroy the principle which the Government deemed better than the system of percentage grants. He did not deny that percentage grants were a stimulus in this work, but they were a stimulus in rich areas. Obviously in a rich district there was more money to be spent, and every pound spent meant another from the Treasury. But that was not the case in the poor areas, where these services were most needed. The Minister had ample powers to bring pressure on a local authority which in his opinion was not adequately supporting this essential work.

The amendment was negatived.

Application of the Act to Exceptional Areas.

On Clause 123, which empowers the Minister of Health to make such Orders as he may judge to be necessary if any difficulty should arise in connexion with the application of the Act to any exceptional area, and to modify the provisions of the Act as far as he considers that to be necessary for carrying the Order into effect

Lord ASKWITH moved an amendment to provide that every Order made by the Minister "shall not be of any effect unless and until a resolution affirming the Order is passed by each House of Parliament."

The LORD CHANCELLOR said that this clause was one which was to be found in some shape or form in a good many recent Acts of Parliament, and it had been proved to be very necessary. But he recognised that as the clause allowed for the possibility of a modification of the provisions of the Act, it might be advisable that the special attention of Parliament should be called to any Order that was made. He could not accept the amendment in the form in which it had been moved, but he was willing to propose that any Order which was made by the Minister in exercise of the power given in

Clause 123 should be brought to the special attention of Parliament instead of being merely laid on the Table of both Houses, and that there should be a necessity for its confirmation by a resolution of each House of Parliament. An amendment would be brought up on the Report stage to deal with the matter.

The amendment was withdrawn.

The Committee stage of the Bill was concluded, and the Bill was reported with amendments to the House.

TUESDAY, MARCH 12TH.

The Age of Marriage Bill.

The Age of Marriage Bill, introduced by Lord BUCKMASTER, the object of which is to make void marriages between persons under the age of 16, was on the motion of Lord Darling referred to a Select Committee.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 6TH.

Mental Patients.

Mr. DAY asked the Minister of Health the number of lunatics in county and borough asylums, hospitals, or licensed houses at the last convenient date.—Mr. CHAMBERLAIN replied: The number of insane patients on Jan. 1st, 1929, in county and borough mental hospitals, registered hospitals, and licensed houses in England and Wales was as follows: In county and borough mental hospitals, 115,690; in registered hospitals, 2,034; in licensed houses, 2,615; total, 120,339.

THURSDAY, MARCH 7TH.

Dangerous Drugs in India.

Mr. GARDNER asked the Under Secretary of State for India if he would give particulars as to the constitution of the Board of Revenue set up by the Government of India to examine applications for permission to import dangerous drugs into India.—Earl WINTERTON replied: The Central Board of Revenue, which has now been appointed by the Government of India to be the competent authority for the purpose referred to by the hon. Member, was constituted in 1924 under the Indian Central Board of Revenue Act, 1924, for the discharge of various administrative functions relating to income-tax, customs, salt, opium, excise, and stamp duties. The Board, which is appointed by the Governor-General in Council, consists at present of two members.

Lost Insurance Cards.

Sir GEORGE JONES asked the Minister of Health whether seeing that a contributor to the national health and pensions insurance, if he lost his card, must replace the card by stamping a duplicate card for any weeks for which the original card was stamped by his employer, he would, in cases where it could be established by unimpeachable evidence that the lost card had the employer's stamps upon it, arrange for a duplicate card to be issued without the contributor having to go to any expense for stamping.—Mr. CHAMBERLAIN replied: I regret that I cannot adopt my hon. friend's suggestion, as it is essential for the proper working of the health insurance scheme that nothing should be done which might conduce to laxity on the part of insured persons with regard to the care and surrender of their cards.

Medical Examination of Female Aliens.

Lieut.-Commander KENWORTHY asked the Home Secretary what medical examinations were made of women and girls entering British ports from France; under what regulations these examinations were made, and in what cases; if he was aware that there had been indignation in France over the alleged humiliating nature of these examinations in certain cases; and whether he would cause inquiries to be made.—Sir W. JOYNSON-HICKS replied: The Aliens Order, 1920, provides that leave to land in the United Kingdom shall not be given to an alien if a medical inspector certifies that for medical reasons it is undesirable that the alien should be permitted to land; and for the purposes of the Order medical inspectors are appointed by and act under instructions issued by the Minister of Health, with the concurrence of the Secretary of State. Legally every alien, whether arriving from France or elsewhere, is liable to medical examination, but in the absence of special reasons it is the practice only to examine those who propose to stay for a considerable period, and in the case of women and girls the examination, at which a nurse or female attendant is present, is usually of a superficial character. As soon as the complaints appeared in the public press, I caused the fullest inquiries to be made into the matter, in consultation with my right hon. friend the Minister of Health. Responsible officers of the two departments visited the ports, and as the result of their investigation they reported that they could find no foundation for the allegation that the examination of women and girls was of a kind that could be regarded as humiliating. I may perhaps add that there is no examination of women for venereal disease. I am anxious to remove any possible source of friction, and I am considering with my right hon. friend what, if any, modification of the existing instructions might usefully be made.

MONDAY, MARCH 11TH.

Sick Leave among Women Clerks.

Mr. KELLY asked the First Lord of the Admiralty the average number of days of sick leave per head during each of the last three years in the case of women clerical officers, writing assistants, and members of the established typing grades respectively, employed in his department; and what was the average number of days of sick leave per head in the case of each of the grades concerned taken on account of gastric or nervous trouble respectively.—Lieut.-Colonel HEADLAM replied: The average number of days of sick leave per head during the last three years in the case of women clerical officers, writing assistants and members of the established typing grades is as follows:—

	Year ended Jan. 31st.		
	1927.	1928.	1929.
Clerical officers	7·0 (*a*)	8·7	8·9
Writing assistants ..	8·5 (*b*)	9·7 (*c*)	5·4
Established typing grades	9·9	8·5 (*d*)	10·7 (*e*)

(*a*) Excluding one woman who had 142 days' sick leave. (*b*) Excluding three women who had 276, 144, and 102 days' sick leave respectively. (*c*) Excluding two women who had 171 and 138 days' sick leave respectively. (*d*) Excluding three women who had 206, 117, and 100 days' sick leave respectively. (*e*) Excluding three women who had 137, 132, and 107 days' sick leave respectively.

Colonel Headlam regretted that he was unable to give the information asked for in the last part of the question.

Mr. KELLY asked the Secretary of State for Air a similar question.—Sir S. HOARE replied: The following table gives the information requested in the first part of the question:—

	Average number of days sick leave per head.		
	1926.	1927.	1928.
Women clerical officers ..	15·9	14·0	14·8
Writing assistants	18·0	10·6	16·8
Established typing staff ..	13·1	16·7	14·2

To furnish the information requested in the last part of the question, he said, would involve the scrutiny of some hundreds of medical certificates, and he did not think that the labour involved would be justified.

Deaths from Small-pox.

Mr. GROVES asked the Minister of Health if he would investigate the circumstances attending the statement of the chief medical officer that the number of deaths from small-pox in the first half-year of 1928 were given as 37; and whether he was aware that conflicting figures had been given.—Mr. CHAMBERLAIN replied: The figure of 37 deaths from small-pox in the first half-year of 1928, given in the chief medical officer's annual report for the year 1927, were, as explicitly stated in the report, provisional and before complete returns were available. The figure was based upon a system of classification set out in the report.

Deaths from Post-vaccinal Encephalitis.

Mr. GROVES asked the Minister of Health how many cases of and deaths from post-vaccinal encephalitis had been reported to his department since September, 1927, when the Rolleston Committee on Vaccination ceased taking evidence.—Mr. CHAMBERLAIN replied: During the period from Oct. 1st, 1927, till Dec. 31st, 1928, 65 cases in which symptoms suggestive of disease of the central nervous system following within a month of vaccination have been brought to the notice of my department. Of these cases, 32 were fatal. All cases of this kind are reported to the Departmental Committee, but I am not yet able to say how many of these 65 cases are regarded by the committee as cases of encephalitis following vaccination.

TUESDAY, MARCH 12TH.

Definition of Tuberculosis as Infectious Disease.

Dr. VERNON DAVIES asked the Minister of Health if any other form of tuberculosis, except tuberculosis of the lungs, would be regarded as an infectious disease under the Local Government Bill.—Sir KINGSLEY WOOD replied: My right hon. friend is advised that any form of tuberculosis is an infectious disease for the purposes of Clause 15 of the Local Government Bill. As my hon. friend is aware, tuberculosis is expressly excluded from the definition of infectious disease for the purposes of Clause 58 of the Bill.

The Services.

ROYAL ARMY MEDICAL CORPS.

Col. H. Ensor, late R.A.M.C., has been selected for promotion to Major-General, and for the appointment of Deputy Director of Medical Services, Eastern Command, in succession to Maj.-Gen. W. H. S. Nickerson, V.C., who is placed on the Half-pay List

Lt.-Col. T. B. Unwin, having attained the age for compulsory retirement, is placed on retd. pay.

Lt.-Col. J. M. B. Rahilly retires on retd. pay.

Majs. to be Lt.-Cols.: G. H. Richard, vice Lt.-Col. T. B. Unwin, and W. G. Maydon, vice Lt.-Col. J. M. B. Rahilly.

ARMY DENTAL CORPS.

Temp. Lt. W. G. Martin, Dental Surg., Gen. List, to be Lt.

REGULAR ARMY RESERVE OF OFFICERS.

Lt. J. N. Leitch, from Supp. Res. of Off., R.A.M.C., to be Lt.

TERRITORIAL ARMY.

Maj. F. E. H. Keogh, having attained the age limit, retires, and retains his rank with permission to wear the prescribed uniform.

Lt. H. E. Suter to be Capt.

INDIAN MEDICAL SERVICE.

Capt (prov.) C. V. Falvey is confirmed in his rank.

Temp. Capt. Daulat Manghirmal Lala relinquishes his temp. commn.

Lt. S. N. Evans resigns his commn.

COLONIAL MEDICAL SERVICES.

The following appointments have been made: Dr. A. W. Dunn and Dr. E. C. Savona, Assistant Medical Officers, British Honduras; Dr. C. S. Davies, Medical Officer, Kenya; and Dr. C. P. Murray, Medical Officer, West African Medical Staff.

NAVAL MEDICAL OFFICERS' DINNER.

The annual dinner of the Royal Navy Medical Club will be held on April 25th at the Trocadero Restaurant. Further particulars may be obtained from Surg.-Comdr. A. T. Rivers, R.N., Medical Department of the Royal Navy, Queen Anne's Chambers, Tothill-street, London, S.W.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a congregation on March 9th the following degrees were conferred:—

Sc.D.—Edward Hindle.
M.B. and B.Chir.—G. W. Pimblett and R. G. Apthorpe.
M.B.—W. E. Underwood.
B.Chir.—E. A. E. Palmer.

Mr. N. E. Goldsworthy, Ph.D., has been elected for three years to the John Lucas Walker studentship for the furtherance of original research in pathology.

UNIVERSITY OF SHEFFIELD.—Mr. Vincent Townrow has been appointed lecturer in diseases of the ear, nose, and throat, and Dr. Rupert Hallam lecturer in dermatology.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.—A course in methods of examination and diagnosis will be held at this hospital on certain afternoons between April 10th and 26th.

POST-GRADUATE COURSE ON PÆDIATRICS.—An Easter course on New Views in Pædiatrics will be given at the Hôpital des Enfants Malades, 149 rue de Sèvres, Paris from April 3rd to 13th, under the direction of Prof. Nobécourt. Applications should be sent to the secretary of the Paris Faculty of Medicine.

BAYLISS-STARLING MEMORIAL SCHOLARSHIP.—The University College Committee will award in June a Bayliss-Starling Memorial Scholarship of the value of about £120, with exemption from tuition fees. The scholar will be required to follow a course of study involving a training in the principles and methods of research in physiology and or biochemistry. Application must be made before May 15th, and information may be had from the Secretary of University College, Gower-street, London, W.C.1.

THE KING has conferred the decoration of the Royal Red Cross (second class) on Miss Rosina Davies, of the London Hospital Nursing Staff, "in recognition of devoted service rendered by her" during His Majesty's illness. The first class of this decoration is reserved for nurses on active service.

WEST LONDON POST-GRADUATE COLLEGE.—The fortnight's course at this College from March 11th to 23rd has been postponed until after Easter, owing to the preoccupation of practitioners with influenza.

INDUSTRIAL NURSING.—An Industrial Nursing Conference has been called by the Industrial Welfare Society and will be held at the Hotel Metropole, London, on April 19th. On the following day visits will be paid to factory clinics.

ROYAL SANITARY INSTITUTE.—On Thursday, March 21st, at 3 P.M., Sir Humphry Rolleston will lecture at this Institute, 90, Buckingham Palace-road, London, S.W., on Industrial Disease and its Prevention.—At a sessional meeting at Birmingham on Friday, April 5th, discussions will be opened by Dr. H. P. Newsholme on Coördination and Coöperation in Preventive Medicine, and by Mr. H. H. Humphries on Some Drainage Problems of Birmingham.

METROPOLITAN ASYLUMS BOARD.—Mr. L. F. Hewitt, Ph.D., has been appointed biochemist at the Board's antitoxin establishment at Sutton. He is at present Gibbons Research Fellow at the London Hospital, where he has also held the Freedom Research Fellowship. Previously he held research appointments under the Medical Research Council and at the Hospital for Sick Children, Great Ormond-street.

NORTH-WESTERN TUBERCULOSIS SOCIETY.—At 3.15 P.M., on Thursday, March 21st, Sir Farquhar Buzzard, Regius professor of medicine in the University of Oxford, will give an address to this society in the anatomy theatre of the medical school of the University of Manchester. His subject will be Tuberculosis and the Nervous System, and the meeting will be open to all medical practitioners.

ROYAL SOCIETY OF EDINBURGH.—Among those who have recently been elected Fellows of this Society are the following: Dr. Sydney Smith, Regius professor of forensic medicine, Mr. Walter Mercer, lecturer in clinical surgery, and Mr. B. P. Wiesner, lecturer in sex psychology in the University of Edinburgh; Prof. E. W. H. Cruickshank, of the Physiological Department of Dalhousie University, Nova Scotia; Mr. D. K. Fraser, psychologist to the Glasgow education authority; and Mr. Thomas Southwell, lecturer in helminthology in the Liverpool School of Tropical Medicine.

DENTAL BENEFIT COUNCIL.—In connexion with the provision of dental treatment for insured persons as an additional benefit under the scheme of National Health Insurance, a body to be known as the Dental Benefit Council has been set up in accordance with Regulations under the National Health Insurance Act, 1928. It will be charged with the duty of making arrangements for securing a satisfactory service of dental treatment for members of approved societies who are entitled to dental benefit and of exercising, subject to the general responsibility of the Minister of Health and the Department of Health for Scotland, supervision over the administration of dental benefit.

WORK OF THE LONDON HOSPITAL.—Lord Knutsford, the chairman, last week reported to the quarterly court of governors that there were 14,583 out-patients—over 2000 less than last year. The quinquennial appeal has produced £118,000, the sum hoped for being £200,000.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—During the past year a new operating theatre has been built and equipped in order that operations upon septic cases may be segregated from clean intra-ocular operations. A pathological department has also been provided, and the ticket system abolished.

DEVELOPMENT OF DROITWICH.—The Droitwich Development Corporation, Limited, has acquired the whole of the town of Droitwich, including the High-street, with 300 shops and houses, the three principal hotels, the two existing brine baths, with the exclusive brine rights over 3000 acres, the park, the golf links, and many miles of existing roads which await development. Over £1,000,000 will be spent on new buildings and reconstruction in the town and baths. Droitwich is two and a half hours by train from London, and it is intended to have an all-the-year-round season.

MELTON MOWBRAY WAR MEMORIAL HOSPITAL.—As soon as means permit, an entirely new building is to be erected adjoining the present hospital, which will then be used for administrative purposes.

REBUILDING OF TIVERTON HOSPITAL.—It is proposed to erect a new hospital at Tiverton at a cost of £30,000 to hold 50 beds instead of the 35 of the present building. It is to be on the bungalow principle.

SUNDERLAND ROYAL INFIRMARY.—At the annual court of governors the chairman of the medical board emphasised the recent remarkable increase in surgical work, which is now five times as great as on the medical side. In 1923 there were 2190 operations; last year the number was 3763. The number of operations on the intestinal tract is much larger, and in 1928 there were 335 operations for appendicitis, with only three deaths.

MANCHESTER UNIVERSITY STUDENTS' "RAG."—The Shrove Tuesday rag of Manchester Students has resulted in the collection of £11,542 for the local hospitals, a drop of about £1200 on 1928. The sale of *Rag-Rag*, the students' magazine, brought in £6000, which exceeds last year's amount by £1400. Glasgow students' collection produced £17,000, constituting a record since the annual collection began in 1921. In nine years the Glasgow students have collected £87,400 for the local hospitals.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, March 19th.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8 P.M., PATHOLOGY. Annual General Meeting: Election of Officers and Council. Communications: G. R. Cameron: The Pars Tuberalis of the Pituitary. L. F. Hewitt: Hormones of the Anterior Lobe of the Pituitary. G. Lenthal Cheatle: The Development of Glandular Tissue in Papillomata of the Breast. L. Colebrook: The Cultivation of Spirochaeta Pallida in a Tissue-free Medium. Demonstration: D. M. Pryce: The Halo Method of Determining the Average Size of Red Blood Cells.

WEDNESDAY, 8.30 P.M., RECEPTION. From 8.30 to 9 P.M. Fellows and their guests will be received in the Library by the President and Lady Dawson of Penn. At 9.15 P.M., Dr. Leonard Williams will give an illustrated address entitled Napoleon III. Music and light refreshments. Various objects of interest will be exhibited in the Library.

THURSDAY, 4.45 P.M., DERMATOLOGY and EPIDEMIOLOGY (Cases at 4 P.M.). Special Discussion on Industrial Dermatoses, their Causation, Recognition, Prevention and Treatment. Openers: Dr. W. Dyson (Dermatology). Dr. Sibyl Overton (Epidemiology). Other speakers: Dr. Allan C. Parsons, Dr. Howard Mummery and others. 8.30 P.M., UROLOGY, PATHOLOGY, and THERAPEUTICS. Special Discussion on Urinary Antiseptics. Openers: Dr. Langdon-Brown (Urology). Dr. Cuthbert Dukes (Pathology).

FRIDAY, 4.30 P.M., DISEASE IN CHILDREN. Clinical Meeting at the Royal Free Hospital, Gray's Inn-road, W.C. EPIDEMIOLOGY: No Meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

FRIDAY, March 22nd.—9 P.M., Dr. H. Wordsworth Barber: Dermatology in relation to other Branches of Medicine. (Third Lettsomian Lecture.)

MEDICO-LEGAL SOCIETY.

THURSDAY, March 21st.—8.30 P.M., at 11, Chandos-street, Cavendish-square, W., Prof. Sydney Smith: The Investigation of Firearm Injuries, followed by a discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, March 21st.—8.15 P.M. (at the Royal Army Medical College, Grosvenor-road, Millbank), Prof. J. W. W. Stephens, and the following, amongst others, will give Demonstrations: Dr. Mary Andrews, Major E. E., Austen, Major H. C. Brown and Dr. W. T. C. Broom, Major S. Elliott, Dr. E. Hindle and A. C. Stevenson, Colonel S. P. James, Colonel W. P. MacArthur, Dr. J. C. Ray, Major D. T. Richardson, Dr. V. B. Wigglesworth.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

TUESDAY, March 19th.—5 P.M., Dr. R. A. Young: A Medical Review of the Surgery of the Chest. (First Lumleian Lecture.)

THURSDAY—5 P.M., Dr. R. A. Young: (Second Lumleian Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, March 18th.—5 P.M., Mr. C. E. Shattock: Specimens Illustrating Disease of the Testis.

FRIDAY.—Prof. Sir Arthur Keith: The Nerve Supply and Movements of the Colon.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION. 1, Wimpole-street, W.

MONDAY, March 18th to SATURDAY, March 23rd.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Mon., at 5 P.M., Lecture by Mr. H. W. Carson on Pitfalls on the Right Side of the Abdomen. WELLCOME MUSEUM OF MEDICAL SCIENCE, 33, Gordon-street, W.C. Wed., 4 P.M., Demonstrations by Dr. S. H. Daukes: A Consideration of the Various Methods of Drug Administration. The above are free.—ROYAL EYE HOSPITAL, Southwark, S.E. Afternoon course in Ophthalmology. Daily at 3 P.M., Clinical demonstration. Further particulars from the Secretary of the Fellowship.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, March 18th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Throat, Nose and Ear Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, and Ear, Nose and Ear, Nose and Throat Clinics. Operations.

FRIDAY—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases Clinics. Operations.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S.W.

THURSDAY, March 21st.—3 P.M., Sir Humphry Rolleston: Industrial Disease and Its Prevention.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, March 19th.—5 P.M., Dr. G. B. Dowling: Mycotic Diseases.

THURSDAY.—5 P.M., Pathology Demonstration.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL Gray's Inn-road, W.C.

FRIDAY, March 22nd.—4 P.M., Mr. Gill-Carey: Foreign Bodies in the Food and Air Passages.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, March 19th.—3.15 P.M., Mr. G. G. Penman: Ulceration of the Cornea.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, March 21st.—4 P.M., Dr. Paterson: The Food Requirements of Infants and Methods of Determination.

NATIONAL COUNCIL FOR MENTAL HYGIENE, 78, Chandos House, Palmer-street, S.W.

WEDNESDAY, March 20th.—5 P.M. (at the Medical Society of London, Chandos-street, W.), Sir C. H. Bond: The Mental Hospital of Today.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, March 22nd.—3.30 P.M. (at the Royal Hospital), Mr. Garrick Wilson: Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, March 19th.—4.15 P.M., Mr. W. R. Douglas: The Acute Abdomen.

FRIDAY.—4.15 P.M., Mr. J. Howson Ray: Demonstration of Surgical Cases.

Appointments.

MEDLOCK, C. H., F.R.C.S. Eng., L.R.C.P. Lond., to be one of the Medical Referees under the Workmen's Compensation Act for St. Albans, Barnet, Hertfordshire, and Watford County Courts.

Certifying Surgeons under the Factory and Workshop Acts: BLAYNEY, W., F.R.C.P. Lond., M.R.C.S. (Harrold, Beds.); CARSON, F. S., M.D. Belf., D.P.H. (Barrow-in-Furness); FLETCHER, C. G., M.B., Ch.B. Edin. (Kippen, Stirlingshire); and STEWART, W. L., M.B., Ch.B. Glasg. (Grampound, Cornwall).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, 91, Finchley-road, N.W.—H.S. At rate of £100 to £150.

Altrincham General Hospital, Cheshire.—Hon. Physician. Also H.S. £105.

Ashton-under-Lyne District Infirmary.—Res. Surg. O. At rate of £200.

Basingstoke, Hants, Park Prewett Mental Hospital.—Jun. Asst. M.O. £350.

Bedford, Bedfordshire Sanatorium.—Res. Asst. M.O. £400.

Birmingham, Ear and Throat Hospital.—Second and Third H.S.'s. Each at rate of £150.

Birmingham, General Hospital.—Res. Anæsthetist. £120. Also four H.S.'s Each £70.

Birmingham, Queen's Hospital.—Anæsthetist. At rate of £70 to £100. Also three H.S.'s. At rate of £70.

Blackburn and East Lancashire Royal Infirmary.—Res. H.P. £150.

Bristol City Mental Hospital.—Third Asst. M.O. £300.

Cambridge, Addenbrooke's Hospital.—H.S. At rate of £130.

Cancer Hospital, Fulham-road, S.W.—Anæsthetist.

Cardiff, City Mental Hospital, Whitchurch.—Research Chemist. £800.

Chelmsford and Essex Hospital.—Res. M.O. £150.

Chester, Royal Infirmary.—Hon. Asst. Physician.

Coventry, Coventry and Warwickshire Hospital.—Hon. Physician.

Derby, Derbyshire Hospital for Sick Children.—Hon. P. and Pathologist. Hon. Ophth. S. Also Hon. S. to Ear, Nose and Throat.

Doncaster, Royal Infirmary.—Third. H.S. At rate of £150.

Dreadnought Hospital, Greenwich, S.E.—H.P. and H.S. Each at rate of £110.

Dumfries, Crichton Royal Mental Hospital.—Clinical Pathologist. £400.

East Ham Education Committee.—Aural Surgeon. Also Ophthalmic Surgeon. Each 3 guineas per session.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Asst. Obstetrician.

Evelina Hospital for Children, Southwark, S.E.—H.S. £120.

Exeter, Royal Devon and Exeter Hospital.—H.P. At rate of £130

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—Second H.S. At rate of £100.

Hastings, Royal East Sussex Hospital.—Pathologist. Asst. Physician. Also M.O. to V.D. Department.

Hereford, Herefordshire General Hospital.—H.S. £150. Also H.P. At rate of £100.

Hospital for Sick Children, Great Ormond-street, W.C.—Part-time Jun. Cas. O. At rate of £150. Also H.S. and H.P. At rate of £100.

Hull, Sculcoates Union Institution, Beverley-road.—Non-Resident Sen. M.O. £700.

Inverness Royal Infirmary.—Hon. Surg.

Italian Hospital, Queen-square, W.C.—Hon. Anæsthetist.

Leeds Tuberculosis Sanatorium, Killingbeck.—Asst. Res. M.O. £250.

Leicester Royal Infirmary.—H.P. £125.

Lewisham Hospital, S.E.—Fifth Asst. M.O. £300.

Lincoln County Hospital.—Jun. H.S. At rate of £150.

L.C.C. Mental Hospital Service.—Eighth Asst. M.O. £300.

London Temperance Hospital, Hampstead-road, N.W.—H.P. At rate of £100.

Manchester Babies Hospital, Burnage-lane, Levenshulme.—Jun. Res. M.O. At rate of £50.

Manchester Royal Infirmary.—Res. Surg. Officer. £200.

Mexborough, Yorks., Montague Hospital.—H.S. £120.

Middlesex Hospital, W.—Sen. Res. Asst. Anæsthetist. At rate of £120.

Miller General Hospital, Greenwich-road, S.E.—Hon. Asst. Dental Surgeon.

Newcastle-upon-Tyne, University of Durham College of Medicine.—Asst. in Pub. Health Labs., &c. £350–£450.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Asst. Surgeon.

Oxford, Wingfield Orthopædic Hospital, Headington.—H.S. £150.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Anæsthetist. £20. Also Hon. Dermatologist.

Reigate Borough.—Medical Officer for Maternity and Child Welfare Centre. £150.

Richmond, Surrey, Royal Hospital.—Sen. H.S. Also Jun. H.S. At rate of £150 and 900 respectively.

Royal National Orthopædic Hospital, 234, Great Portland-street, W. Hon. Asst. S.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Surgical Registrar.

St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Physician to Dermatological Department.

St. Thomas's Hospital, S.E.—Asst. Surgeon in Orthopædic Dept.

Salisbury General Infirmary.—Two H.S.'s. Each £150.

Salop County Council.—Asst. M.O. £600.

Sheffield, Royal Infirmary.—Surgical Registrar. £200.

South London Hospital for Women, South Side, Clapham Common, S.W.—H.P. and Three H.S.'s. Each at rate of £50.

Southampton Children's Hospital.—Res. M.O. £100.

Southern Rhodesia Government.—Asst. Schools Dental Surgeon. £600 + 50—£750 per annum.

Swansea Hospital.—H.S. £150.

Torquay, Torbay Hospital.—Hon. Physician, Hon. Surgeon. Hon. Asst. M.O. Also Hon. Anæsthetist.

West London Hospital, Hammersmith-road, W.—H.P. and Two H.S.'s. Each at rate of £100. Non-Res. H.O. for Children's Department. 5 guineas weekly. Also Hon. Asst. Anæsthetists.

The Chief Inspector of Factories announces a vacancy fo a Certifying Factory Surgeon at Littleport (Cambs.).

Births, Marriages, and Deaths.

BIRTHS.

ALABONE.—On March 6th, at "Brent Tor," Dyke-road, Hove, the wife of Leslie Alabone, L.D.S.R.C.S.Eng., of a daughter.

ELKINGTON.—On March 4th, at Welbeck-street, the wife of Capt. E. H. W. Elkington, R.A.M.C., of a daughter.

GRAY.—On March 5th, at Westerhall, Weymouth, the wife of Adam Gray, M.D. Aberd., of a son.

HUGHES.—On March 5th, at The Mall, East Sheen, the wife of Royston Hughes, L.D.S. Eng., of a daughter.

MARRIAGES.

CRADDOCK—JOYCE.—On March 2nd, at St. Mary's, Paddington, Stuart Craddock, M.B., B.S., M.R.C.S., L.R.C.P., to Lilian Margaret Heath Joyce.

EMERY—STEWART.—On March 2nd, at Regent-square Presbyterian Church, W.C., Clyde K. Emery, B.A., M.D., M.R.C.S., L.R.C.P., to Wendy Stewart, B.Sc., daughter of Dr. and Mrs. A. A. Stewart, of Northampton.

DEATHS.

COOMBS.—On March 3rd, at Bedford, Rowland Hill Coombs, M.D., M.R.C.P., D.L., J.P., aged 84.

DIXON.—On March 8th, at The Bungalow, Stevenage, George Frederick Dixon, M.R.C.S., L.R.C.P., in his seventy-third year.

DOYLE.—On Jan. 29th, 1929, at Sydney, in the seventieth year of his age, The Honourable Henry Martin Doyle of Newcastle, New South Wales, member of the Legislative Council of New South Wales, M.R.C.S. England, L.R.C.P. London, L.S.A. London, youngest son of the late James Doyle of Ballan, Victoria, and of Tombric on the River Slaney, Wexford, Ireland, and nephew of the late Venerable Canon Thomas Doyle of Ramsgrange, Wexford. Born at Ballan, Victoria, 1859. R.I.P.

FULLER.—On March 7th, at Abercorn-place, N.W. Henry Roxburgh Fuller, M.V.O., M.D., late of Curzon-street, W. 1, after a long illness.

KENDALL.—On March 5th, at Chiddingfold, Nicholas Fletcher Kendall, M.R.C.S., L.R.C.P., aged 59.

RIVIERE.—On March 6th, at Queen Anne-street, W. of pneumonia, Clive Riviere, M.D., F.R.C.P., aged 56.

THOMSON.—On March 6th, at Leyborne-park, Kew Gardens, Surrey, Elsie Thomson, M.B., Ch.B. Edin. D.P.H., aged 37 years.

WALKER.—On March 3rd, at Deerfield-road, March, Cambs., James Pixton Walker, M.D., M.R.C.S., L.R.C.P. D.P.H., County Medical Officer, Isle of Ely, aged 63.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

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Notes, Comments, and Abstracts.

MEDICO-LEGAL DIFFICULTIES IN GENERAL PRACTICE.

AN ADDRESS AND A DISCUSSION.

AT a meeting of the West Kent Medico-Chirurgical Society held on March 8th, Dr. T. E. WHITE, Vice-President, took the chair, and Dr. JAMES NEAL, Secretary of the Medical Defence Union, read a paper on Some of the Medico-Legal Difficulties of General Practice.

During 1928, he said, he had been consulted by over 1400 medical practitioners—which gave some idea of the prevalence of medico-legal problems in the profession. Most of them were preventable; many were due to carelessness or slackness; some to ignorance of the statutes which affected a medical practitioner. The doctor was subject to all the obligations of an ordinary citizen, except jury-service, and even from that he must claim exemption when the lists were revised; if his name appeared on the list he would be liable to serve. In addition, some 50 special statutes imposed duties on the medical practitioner in connexion with his work, and obligations imposed by professional traditions regulated his relations with the public and his colleagues. The General Medical Council was the only authorised body empowered to exercise control over the doctor, and it derived its authority solely from its power to erase a name from the Register. Every practitioner should therefore make himself acquainted with the various pronouncements of the Council.

Obligations of the Registered Medical Practitioner to the State.

Notification of Births.—Too often the practitioner "in attendance upon the mother at or within six hours after the birth of a child," omitted to ascertain whether the father or nurse had given the required notice in writing to the medical officer of health, with the result that—owing to the default of others—he rendered himself liable to a fine. All births after the twenty-eighth week of gestation must be notified, whether the child were born alive or dead. As stillbirths must now be registered, the doctor might be required to certify that the child was not born alive, but this was not a statutory duty and the certificate could be charged for. No charge could be made for notification of birth.

Certification of Death.—The doctor attending a patient in his last illness must sign and deliver to the registrar—either personally or in the official franked envelope by post—a certificate of the cause of death. Notice in writing of the signing of the certificate must be given to the person who would register the death. Even when the doctor desired to refer the facts to a coroner he should not now refuse the statutory certificate, but should indicate on the back thereof that he had reported to the coroner, and the registrar would then suspend registration of death until he learned whether or not the coroner would hold an inquest. The doctor must state on the certificate whether or not he had seen the deceased since death, and the registrar would report to the coroner any case where the deceased had not been seen by the certifying practitioner since death or alive within 14 days before death. No fee could be charged for the statutory certificate, but any additional certificate required by the relatives might be charged for. Any certificate required under the Friendly Societies' Act must be a "certified copy" issued by the registrar and not a duplicate signed by the doctor. The statutory certificate could not be refused on the ground that professional fees were owing.

Inquests.—There was no statute imposing on medical practitioners the duty of notifying a death to the coroner, but the doctor shared with others the common law duty of informing the coroner of any case of sudden or suspicious death. For a post-mortem examination and report ordered by the coroner the practitioner would be paid a fee of two guineas, with an additional guinea if he gave evidence at the inquest. The fee for giving evidence without a post-mortem was one-and-a-half guineas for each day. The doctor should insist on a subpœna for the inquest, as without it he would not be able to enforce his claim for a fee.

Notification of Infectious Disease.—It was the duty of every doctor, on becoming aware that a patient was suffering from a scheduled infectious disease, to send forthwith to the medical officer of health a certificate stating the name of the patient, situation of the building, and the disease. Similar notifications must be sent to the chief inspector of factories in the case of lead, phosphorus, arsenic or mercury poisoning or anthrax contracted in any factory or workshop. It was customary to notify infectious disease by telephone to ensure early removal to hospital, but the statutory written notification should be made at the earliest moment also.

Evidence in Court.—The evidence in court of a medical practitioner was privileged to the extent that no civil action would lie against him in respect of it, but he could not refuse to disclose information obtained in the course of professional relationship. He should appeal to the judge if asked to disclose a confidence, but if the judge directed him to answer he must obey or take the consequences, which might involve committal for contempt of court. The fee for a professional witness in criminal cases was fixed by Home Office regulations. In civil cases the High Court usually allowed from one to five guineas a day with reasonable travelling expenses, but the witness usually arranged professional fees with the solicitors. He should insist on a written undertaking beforehand to pay the agreed amount. It was worth remembering that the only way to avoid the risk of being compelled to attend Court was to avoid being in a position to give evidence on any matter likely to be the subject of legal proceedings. Before giving a report in a case that might lead to litigation it was wise to insist on a written guarantee of fees for the report and for subsequent attendance in Court.

Dangerous Drugs Regulations.—The publication of the Dangerous Drugs (Consolidated) Regulations, 1928, had simplified the complex position relating to dangerous drugs. All doctors were now required to enter in a register true particulars of every quantity of any drug or preparation obtained. Seventeen preparations were specifically exempted, as were also those containing less than one-fifth per cent. of morphine or one-tenth per cent. of cocaine. All strengths of heroin and extracts and tinctures of Indian hemp were now included. A medical practitioner was entitled to prescribe whatever drugs he conscientiously believed to be necessary for the patient, but if he were disposed to order an excessive quantity of a dangerous drug he would be well advised to call in a colleague of repute to assist him in deciding the amount. Administration of morphine or heroin to addicts could only be regarded as legitimate for persons undergoing treatment by gradual withdrawal and for those from whom, after every effort had been made, the drug could not be completely withdrawn. In either case the practitioner should exercise close supervision and share his responsibility with a colleague. Since 1926 special tribunals might investigate the case of a doctor who was believed to be supplying or prescribing the drugs otherwise than in proper medical treatment, and on their recommendation the Home Secretary might withdraw the doctor's authorisation, so that—although still entitled to practise—he would be deprived of a part of his necessary equipment.

Certification.—Medical certification of all kinds bristled with dangers, and scrupulous care should be taken only to certify such facts as were within the personal knowledge of the certifier. Words affecting the character and reputation of the person concerned must not be used. Many certificates were highly confidential and should be handed to the patient only. The diagnosis of an infectious disease might be called in question, but provided the certifying doctor possessed average skill and knowledge and had taken reasonable care, he was not likely to be held liable. A doctor consulted in a case of alleged insanity ought to be protected from the heavy legal costs of defending undeserved attacks or ridiculous accusations. Section 330 of the Lunacy Act, 1890, was clearly intended to afford some measure of protection, but since the case of *Toogood* v. *Wilks* it had been held that the burden of proving negligence did not lie with the plaintiff, but that the doctor must prove that he had acted in good faith and with reasonable care. This particular point, however, had not been made clear by the Court of Appeal in the Harnett case, and where the onus of proof lay was not quite certain. However much it might be possible to strengthen Section 330, there would remain the danger of an action for libel. If the certificate had been given in good faith and with reasonable care this ought not to be possible, for no action would lie if the same statements had been made in the witness-box on oath. At present, however, every certifying doctor had the fear of subsequent litigation in his mind for many years.

The Doctor's Obligations to His Patient.

In every case a medical practitioner was legally bound to employ a reasonable amount of knowledge, skill, and care, and—in the absence of a definite arrangement that he should not be paid—he was entitled to be reasonably remunerated for his services. A doctor was not at the beck and call of anyone who chose to send for him. There was no law to compel a man to attend a patient, but if he once undertook to do so he must not go back, except at his own risk. Even if he were attending a case gratuitously he should only withdraw after giving the patient reasonable opportunity to obtain other medical assistance. The legal relationship between doctor and patient was one of contract, and the contract should be as definite as possible from the

outset, to avoid misunderstanding. When some person other than the patient promised to pay the medical fees, the promise should be given in the presence of a reliable witness or confirmed in writing, and the doctor must be careful in the first place to render his account to the person thus made liable and not to the patient. If the promise were conditional—that the other person would pay if the patient did not—the guarantee must be in writing to render it legal. Parents were liable for the fees of a minor, and the husband was liable for his wife, even when separated, unless she had been guilty of adultery or he had made her a definite allowance to cover the cost of medical attendance. An employer was not usually liable for the fees for his servant unless he had assumed liability by a specific contract. Whoever called in a doctor in an emergency was liable for that particular visit, but not for subsequent ones.

A practitioner had no right to do anything to a patient without his consent, or to a child without the consent of parents or guardians. In emergency he must exercise his discretion. Ideally the surgeon should obtain written authority to use his discretion before operating, or he risked an action for assault. A practitioner should not, without the patient's consent, disclose information obtained in the exercise of his professional duties, but this rule was often very difficult to observe strictly. Chief constables sometimes circularised local doctors asking them to inform the police if they should be called in to a woman recently confined when the child was missing; such circulars should be ignored, for it was not part of a doctor's duties to act as a detective. If a mistress brought her servant to the doctor, he could only examine the girl with her own free consent and could only report to the mistress with the girl's permission. In the absence of conclusive objective evidence of criminal interference the doctor would be wise to regard cases of abortion as natural and to refrain from asking questions or receiving information which would make him an accessory after the fact. Even when convinced that the abortion had been criminal he was under no legal obligation to inform the authorities, but if the patient were likely to die he should as a rule urge her to make a statement which might be used as evidence against the abortionist. A dying declaration need not be in writing, though it should be so if possible, and must be signed by the writer and the patient, and witnessed. The doctor who gave information on the uncorroborated statement of the patient might find himself in serious difficulties. In cases of attempted suicide the main consideration must be the welfare of the patient, and only very rarely should information be given to the police.

No information might be given to a wife or husband without the patient's consent, and the wisest course was to explain the illness fully to the patient and refer inquiries to him. The only exceptions to the rule of professional secrecy were where disclosure was required under an Act of Parliament, as in infectious disease; where it was given in obedience to an order of the Court, and when given to prevent the commission of a crime or grave danger to another, or to safeguard the interests of the patient himself. The doctor must be prepared to justify any departure from the usual rule.

Allegations of Negligence.

However well informed and careful a practitioner might be, he was always at the mercy of any aggrieved person. It was a great temptation to avoid publicity by a small monetary payment, but every case fought and won would help to protect other practitioners from similar claims. Most allegations of negligence were set up as a counter-claim against the payment of fees. If a doctor had exercised due care and ordinary skill he was entitled to be paid; his employment did not imply a contract to cure. Negligence could not be defined; substantially, it meant failure to exercise "reasonable skill and care," and this might include instructions to the nurses and patient for their conduct in the doctor's absence or after his attendance had ceased. Each case must be decided on its merits, and it was rarely possible to appeal against the decision of a jury on a question of fact such as negligence; the bench often displayed a tolerant attitude to the doctor, but it was by no means certain that the jury would do so. It was the easiest thing in the world to trump up a charge against a doctor; almost any line of treatment was open to criticism. The defence depended upon the evidence available to rebut the alleged negligence. The prudent man would therefore adopt precautions as a routine. Detailed examination and elaborate tests were of the greatest value when a case went into court. A stupid error in diagnosis was not likely to lead to disaster if there had been a punctilious observance of all the customary procedures for arriving at a correct diagnosis, but an excusable or almost unavoidable mistake was difficult to defend if there had been an omission of any recognised procedure, however useless in the particular case. Even the most necessary routine examination of a woman might be misconstrued as an indecent assault, and if that risk were carefully avoided the doctor might be charged with incomplete and negligent examination. The peril was no mere bogy. In cases of extreme carelessness or gross ignorance criminal proceedings might be taken against the doctor.

Libel and Slander.—Responsibility of the Surgeon.—Gifts.

Doctors were particularly liable to be prejudiced in their profession by slanderous rumours; it was of paramount importance to get evidence as early as possible and to secure a signed statement from anyone who could testify to the utterance. It was not sufficient to say that "scores of people" had heard the slanders and would be pleased to give evidence when the time came.

In any case of injury to bones or joints the doctor should invariably advise X ray examination, and take some steps to record the fact if the advice were refused. It was generally said that a surgeon was responsible for negligence on the part of his helpers at an operation, but it was very doubtful if he could be held responsible for the acts of, for instance, a fully trained nurse carrying out duties delegated to her, fully within her competency, and which the surgeon could not conceivably supervise while attending to his own work. Apart from midwifery it was extremely indiscreet for a doctor to operate and anæsthetise single-handed; he should never do it on a woman patient. Dr. Neal regarded any sterilising operation—except for pathological conditions—as illegal, and thought that if the patient should die the operator would be in grave danger of conviction for manslaughter.

There must be no possibility of even a suspicion of undue influence on the part of a doctor for his own benefit in the case of gifts and legacies from patient to doctor. Undue influence must be proved in order to invalidate a will and it must be shown that the testator was coerced into doing what he really did not want to do.

Inquiries by Public Health Officers.

Early in 1927 practitioners in four districts had been asked to give information on the health of parents, the character of pregnancy, and any history of tuberculosis, syphilis and rickets, as part of an international inquiry into infant mortality. The Medical Defence Union had been unable to advise compliance with these requests in individual cases, and the form of questionaire had soon been modified, although not so much as to render it unobjectionable. Inquiries had recently been made in connexion with puerperal fever regulations; the objection to these lay in the fear that the information given might prejudice the doctor's legal position in the event of proceedings for alleged negligence. Medical practitioners were under no obligation to furnish any information to the medical officer of health in such cases.

Doctors were frequently liable to a double penalty for a single offence, for any practitioner who had been convicted and punished for a felony or misdemeanour was liable to have his name erased from the Medical Register. The medico-legal dangers of the doctor were by no means imaginary.

Some Points Raised in Discussion.

In reply to various questions put by members of the audience Dr. Neal added the following points:—

In practice it was often inconvenient to post a death certificate to the registrar on account of the delay involved: by law it must either be handed personally or sent in one of the franked envelopes, but the registrar often allowed it to be sent by a messenger—who might be the relative—at the doctor's own risk. If a policeman fetched a doctor for an accident the fee should be recoverable from that individual policeman, but not necessarily from the police force. In some districts the police would always pay; in others they would not. The rule of professional secrecy did not depend upon the severity of the disease. If a contagious syphilitic patient, after full explanation, insisted on marrying, the doctor's action was a matter for his individual conscience. If a mother brought her daughter whom she suspected of being pregnant, the doctor should insist that the daughter tell her mother rather than tell her himself. A doctor who contracted an infectious disease in the course of his employment by a public body could only have a claim against that body either under the Workmen's Compensation Act—the total allowance being then 30*s.* a week—or under common law. Unless there were negligence on the part of the authority he would have no redress. To tell a nurse attending a patient that the latter had, for instance, syphilis, and warn her to be careful, would be a privileged communication and certainly necessary in the interests of the nurse. A hospital was not likely to be liable for the actions of its medical officers if due discretion and care had been exercised in their selection. The guardians would usually pay the expenses of a poor-law medical officer sued for wrongful certification under the Lunacy Act, though not perhaps his damages, if awarded.

There was no doubt that a surgeon would not be held responsible for negligence on the part of the anæsthetist. A remark in the doctor's notes: "X ray advised and refused" would certainly be a valuable defence, especially when the absence of an X ray picture was the only point where negligence was alleged.

THE HEALTH OF PALESTINE AND TRANS-JORDANIA.

A REPORT, signed by Field-Marshal Lord Plumer, the High Commissioner, was recently presented by H.M. Government to the Council of the League of Nations on the administration of Palestine and Trans-Jordania for the year 1927.

Epidemic Disease.

Palestine was comparatively free from epidemics of the more serious diseases. There were 1001 cases of enteric with 76 deaths; the incidence was high in Jerusalem, but much reduced in Haifa, Tel-Aviv, and the Jewish settlements in the Valley of Esdraelon, where inoculation, practised after the serious outbreaks of 1926, gave a large percentage of immunity. Dysentery was more prevalent, with 1782 cases, 31 fatal. Neither plague nor cholera occurred. There was a single case of small-pox in Jerusalem, imported from Damascus; 34,000 inhabitants of Jerusalem underwent vaccination in consequence; the total of vaccinations during the year reached 81,893. There were 3305 cases of measles, a source of considerable infant mortality; 324 deaths resulted. Eighty-three cases of typhus occurred, with one death, in villages where the disease is endemic. Urban scavenging services were generally well maintained and not a few improvements in organisation and in refuse disposal introduced. The improvement in the sanitation of shops and houses was marked in old quarters as well as in new suburbs. A little progress was made in improving the sanitary conditions in the settlements attacked by enteric fever.

Vital Statistics.

The birth-rate was slightly less than in 1926 and the death-rate and infantile mortality increased. There were 3186 more deaths than in 1926, including 2620 of children under 5 and 450 of persons over 50 years. This increase was evenly distributed among Moslems, Jews, and Christians, and is not attributable to infectious disease. For the quinquennial period, 1923–27, the birth- and death-rates per 1000 were as follows:—

	Birth-rate.	Death-rate.	Estimated population.
1923	47·43	25·67	662,013
1924	51·31	25·94	681,245
1925	49·31	27·25	719,508
1926	53·47	24·43	761,896
1927	50·35	28·01	778,369

(NOTE.—No figures, either in this table or the one below, are included for the nomadic Bedouin population, estimated at 103,000.)

The following is a comparative table of births and deaths by religions for the year 1927:—

	Christians.	Moslems.	Jews.	Others.	Totals.
Population ..	76,839 ..	545,225 ..	147,687 ..	8,618 ..	778,369
Deaths	1,545 ..	18,031 ..	1,987 ..	243 ..	21,806
Death-rate per 1000 ..	20·10 ..	33·07 ..	13·45 ..	28·19 ..	28·01
Births	2,991 ..	30,586 ..	5,182 ..	434 ..	39,193
Birth-rate per 1000 ..	38·92 ..	56·09 ..	35·08 ..	50·35 ..	50·35
Deaths of infants under 1 year	560 ..	6,631 ..	598 ..	68 ..	7,857
Infantile mortality-rate ..	187·22 ..	216·79 ..	115·79 ..	153·68 ..	200·46

Personnel.

Twenty-six pupil midwives and 11 midwives with foreign qualifications were licensed, bringing the number of trained and licensed midwives up to 221. Yet midwives are reluctant to settle in the villages to practise among the peasantry where their attendance is a crying need. There are now 561 doctors, 160 pharmacists, and 183 dentists licensed in Palestine. At the end of the year there were 28 child welfare centres—17 Jewish, 7 Government and municipal, and 4 conducted for Arab children.

Leprosy. Malaria.

Twenty-four lepers, who are not in-patients at the Moravian Mission Home in Jerusalem, receive out-patient treatment at the Government dispensaries. A British specialist surgeon has been appointed to the staff of the Department of Health. Improvements at the Jaffa Lazaret are in progress; it is being adapted to receive infectious cases in the event of a large epidemic. The Haifa Lazaret was remodelled and re-equipped to provide good accommodation for 500 persons. 601 Palestinians made the pilgrimage to Mecca. Foreign pilgrims, Persians, "Iraqis," and Indians show an increasing tendency to return by way of Palestine and so overland to Iraq. The cholera epidemic in Iraq necessitated special precautionary measures on the Palestine and Trans-Jordan frontiers, which the rapidly developing trans-desert route from Iraq to Syria and Palestine renders more liable to infection. There was rather more malaria on the whole than in 1926, and during the autumn several sharp but localised outbreaks occurred in the Jordan Valley and other infected regions. An important scheme for draining the malarious Kishon swamps near Haifa at a cost of £P22,000 has begun. The Palestine Jewish Colonisation Association continued work on the drainage of the Kabbara marshes. Malaria control measures over a large area round the Palestine Electric Corporation's camp near the confluence of the Jordan and Yarmuk were carried through by Government agency.

Hospitals.

The Government are contributing some 30 per cent. of the cost of a new hospital in Tel-Aviv, and will guarantee payment of an annual contribution by the Tel-Aviv township towards its maintenance on condition that a certain number of beds is set aside for the treatment of local cases of minor infectious diseases. Two new motor-ambulances have been obtained for the Department of Health; police in each district were instructed in first-aid, and police-stations re-equipped with first-aid materials.

Over 100,000 routine bacteriological and chemical investigations were carried out. The bacteriological subsection of the Government laboratories has produced all prophylactic and curative vaccines required by Palestine and Trans-Jordan as follows: Small-pox, 180,000; plague, 1500; typhoid, 32,600; T.A.B., 38,650; cholera, 60,800; antirabic, 71,585 (1008 treatments). The chemical subsection devoted itself to the analysis of edible oils and fats.

Trans-Jordania.

During the year the following cases of infectious diseases occurred: Of enteric fever, 66 with 6 deaths; of influenza, 34 with 6 deaths; of dysentery, 66 with 2 deaths; of whooping-cough, 31; of measles, 154 with 30 deaths; of mumps, 154; of chicken-pox, 12; of pneumonia, 37 with 7 deaths; of puerperal fever, 4; and of erysipelas, 14 cases with 1 death. There were single cases of small-pox (imported) and diphtheria. The steps taken to protect water-supplies from contamination have noticeably reduced the incidence of enteric and dysentery. The control of malaria throughout Trans-Jordania is well in hand. Special campaigns were organised in the fertile but hitherto infected areas along the south-eastern shores of the Dead Sea, where 88,000 metres of canal and stream were cleared and rendered innocuous. The Italian National Association opened a hospital at Amman with 28 beds. The Church Missionary Society's hospital at Es Salt receives an annual grant of £E240 from Government. The Department of Health has now a laboratory section in charge of a qualified bacteriologist.

BIFOCALS FOR GOLFERS.

UNDER this heading there is a letter in the *Optician* for Feb. 1st in which the writer relates that he was one day playing golf with an opponent who was wearing bifocal spectacles and inquired how he managed to see the ball. "His reply was unexpected. He said he had improved his game at least six strokes a round because the bifocals made him keep his head low." As is well known among golfers one of the most distressing maladies to which they are subject, with which the mere will is often powerless to grapple, is that of "looking up." What actually happens is that at the moment of striking the ball our heads go up while our eyes are still looking down. The suggestion is that if we cannot see the ball clearly through the lower part of our spectacle glasses that will serve as a reminder to us not to move our heads up at the critical moment, with the result of "topping" the ball. The story is one over which medical golfers might do well to ponder, and perhaps to test by experiment.

CLAYTON HOSPITAL, WAKEFIELD.—Miss Elizabeth Childs last week cut the first sod in preparation for the building of the new women's wards at this hospital, the cost of which, approximately £30,000, is being borne by her cousin, Mr. Samuel Childs, of Camden, New Jersey, a native of Wakefield. The new wing will adjoin the out-patients' department, which was recently built and equipped by Mr. Childs. It will comprise two women's wards with 48 beds and a small private ward for paying patients, and will be a complete unit with its own operating theatre.